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# Proximate and Fatty Acid Composition of 40 Southeastern U.S. Finfish Species

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## ABSTRACT

**This report describes the proximate compositions (protein, moisture, fat, and ash) and major fatty acid profiles for raw and cooked samples of 40 southeastern finfish species. All samples (fillets) were cooked by a standard procedure in laminated plastic bags to an internal temperature of 70°C (158°F). Both summarized compositional data, with means and ranges for each species, and individual sample data including harvest dates and average lengths and weights are presented. When compared with raw samples, cooked samples exhibited an increase in protein content with an accompanying decrease in moisture content. Fat content either remained approximately the same or increased due to moisture loss during cooking. Our results are discussed in reference to compositional data previously published by others on some of the same species. Although additional data are needed to adequately describe the seasonal and geographic variations in the chemical compositions of many of these fish species, the results presented here should be useful to nutritionists, seafood marketers, and consumers.**

## INTRODUCTION

The need for thorough and reliable data on the proximate and fatty acid composition of food, especially fish, is expressed throughout the literature. These data are needed by nutritionists and food scientists to aid them in dietary formulations, nutrient labeling, processing, and product development (Exler et al. 1975; Kinsella et al. 1975, 1977). Sidwell (1981) summarized data from 1,204 publications and reported chemical and nutritional composition for approximately 1,500 species of finfish and shellfish; however, the fatty acid data reported by Sidwell were very limited, and the values were determined by gas-liquid chromatography (GLC) using packed columns that did not provide complete separations of the fatty acids. She noted that the range of values for particular constituents within a species is sometimes quite large. Part of this variation is probably due to both seasonal and biological differences as well as differences in analytical methods used by various researchers (Sidwell 1981).

The role that diet plays in the prevention of certain diseases continues to be a subject of major interest. Fish oils, with their preponderance of omega-3 (or n-3, which is the most recent convention in fatty acid shorthand notation), long chained fatty acids are linked with the prevention of coronary heart disease or CHD (Stansby 1984). Several studies have shown that the consumption of fish or fish oils reduces blood lipid levels in humans. Phillipson et al. (1985) found that a fish oil diet leads to decreases in both plasma cholesterol and triglyceride, as compared with a control diet without fish oils, in patients with elevated blood lipid levels. Fish oils, in addition to lowering lipid levels, may also act to reduce platelet aggregation, decrease blood viscosity, prevent ischemic damage, and, possibly, lower blood pressure (Stansby 1984; Harris 1985).

A thorough knowledge of the chemical components, particularly the lipids and fatty acids, is essential for the food scientist developing new fish products. The lipids in fish flesh are highly unsaturated and can oxidize very rapidly, producing compounds which may impart off-flavors and off-colors to the flesh (Kinsella et al. 1978). Lipases, which are also present in fish muscle, can release free fatty acids causing a reduction in the water-holding capacity of the protein, resulting in a tough, dry texture (Love 1966; Kinsella et al. 1978).

As part of a national program, the National Marine Fisheries Service (NMFS) Charleston Laboratory has determined the edibility characteristics and chemical compositions of southeast regional finfish species. The United States Army Natick Research and Development Laboratories, under an NMFS contract, developed a standard protocol for evaluating species edibility characteristics (flavor and texture), by applying both sensory and instrumental methods (Kapsalis and Maller 1980). For each of 40 fish species, at least three different seasonal samples were evaluated by a trained sensory panel. Instrumental texture and color measurements as well as proximate chemical compositions and fatty acid profiles were determined whenever possible on the same batch of fish. The edibility characteristics and instrumental measurements for the 40 southeastern finfish species were published elsewhere (Gooch and Hale 1986). This report presents data on the proximate and fatty acid compositions for both raw samples and samples which were cooked according to the standard procedure. In this report, however, summer flounder was deleted and Florida pompano was added.

## METHODS

### Sample preparation

The common and scientific names (American Fisheries Society 1980) of the 40 southeastern finfish species we examined are listed in Table 1. Only very fresh (unfrozen and stored on ice) fish that had been identified as to species were used in this study. Most of the finfish were purchased from Charleston seafood markets. Some species were landed locally while others were harvested off the North Carolina coast. Recreational fishermen provided several samples of great barracuda, dolphin, crevalle jack, king mackerel, and Spanish mackerel. The shark samples were obtained from research survey cruises by the South Carolina Wildlife and Marine Resources Department or from a local charterboat captain. Bleeding was accomplished by cutting off the tails. After bleeding, the sharks were butchered (fins, head, viscera, and belly flap removed), washed thoroughly with seawater, and placed either in a seawater-ice slush tank or directly in crushed ice (Low and Ulrich 1984).

Length and weight measurements were made on individual fish, and the mean reported. In several instances, i.e., some of the groupers and sharks, the sample consisted of a single large fish. Skinless fillets were prepared with the belly flaps, nape, and tail sections removed. The fillet portions to be cooked were placed in boil-in-bag pouches with drainage pockets and suspended in an agitated water bath at 71°C (159-160°F). Thermocouples were centered in several fillets and the fish were cooked to an internal temperature of 70°C (158°F). Random raw and cooked flesh samples were homogenized separately in a Robot Coupe food processor, placed in polypropylene sample cups, frozen and stored at −30°C until analyzed for proximate and fatty acid composition.

### Proximate composition

Samples were analyzed for crude protein by the Kjeldahl method (Horowitz 1975). Moisture was determined on samples that were dried to constant weight in a forced air convection oven overnight at 100°C. Ash determinations were made on samples after heating overnight at 500°C. Fat was determined according to the Bligh and Dyer (1959) chloroform-methanol extraction method as modified by Smith et al. (1964). This modification employed a higher solvent:tissue ratio, designed for more complete lipid extraction. All samples were analyzed in duplicate.

### Fatty acid composition

Lipids were extracted from the fish flesh in preparation for fatty acid determination using the Bligh and Dyer (1959) procedure. Trans-esterification of the fatty acids to their methyl esters was by a boron trifluoride-methanol procedure (Metcalfe and Schmitz 1961; Metcalfe et al. 1966). The esters were then spotted on silica gel-impregnated glass fiber sheets (Gelman Sciences, Inc., Ann Arbor, MI) and developed in a 90:10:1 solution of petroleum ether:diethyl ether:acetic acid. The purified esters fluoresced under UV light, which made it possible to locate and extract them from the adsorbent for analysis by capillary column GLC. Capillary columns yield better separations of individual fatty acids than packed GLC columns.

The fatty acid methyl esters (FAME) were separated on a Hewlett-Packard 5830 or 5840 gas chromatograph (Hewlett-Packard Co., Palo Alto, CA) equipped with a flame ionization detector (FID), using 50 m × 0.22 mm (i.d.) wall-coated open-tubular (capillary) flexible fused silica columns coated with Carbowax 20M (Hewlett-Packard Co.), CP Wax 52CB (Chrompack Inc., Bridgewater, NJ), or Silar 5-CP (Chrompack Inc.). These liquid phases all have similar McReynold's Constants. Operating conditions were as follows: column oven operated isothermally at ∼190°C or temperature programmed from 180°-210°C at 1°/min (depending upon type and age of column); injection port temperature, 250°C; detector temperature, 270°C; helium carrier gas at 1 mL/min; nitrogen makeup gas at 30 mL/min. The gas chromatograph was equipped with a Hewlett-Packard 18850A microprocessor which reported retention time, peak area, and area percent for each component. These data were transferred directly to an Apple IIe microcomputer for disk storage and subsequent transferral to a Model 4 Radio Shack microcomputer via a commercial communications program (Videotex Plus, Tandy Corp., Ft. Worth, TX). Fatty acids were identified using a BASIC program which calculated equivalent chain length (ECL) values from their retention times (Jamieson 1970), compared the ECLS with those of authentic primary and secondary standards, and reported probable identities. These identifications and percentages were visually inspected and corrections made whenever necessary.

## RESULTS AND DISCUSSION

Table 2 summarizes the proximate chemical compositions (protein, moisture, fat, and ash) in weight percent for the species evaluated. Mean values are given along with the range and number of samples analyzed. Protein content of the sharks was corrected for the non-protein moieties such as urea (Stansby and Hall 1967; Stansby 1976). Table 3 summarizes fatty acid profiles for the 40 fish species. Again, mean values are given along with the range and number of samples analyzed. Concentrations in weight percent are listed for 12 fatty acids. These particular fatty acids were selected from the 16 major ones shown in Tables 4 to 43 because they were generally present in greatest concentrations. Tables 4 to 43 list individual sampling dates, mean fork length, and weight measurements for the whole fish (unless otherwise indicated), proximate compositions (in weight percent), and weight percentages of 16 major fatty acids (17 in the striped mullet) for each evaluation. These 16 fatty acids were chosen either because they are usually present in significant amounts or they are of nutritional importance. Both raw and cooked sample results are listed. In instances where the fish were not obtained whole, a notation is given, e.g., gutted or H&G for headed and gutted.

The fatty acid shorthand notation used in all tables is the same as that adopted by Joseph (1985), wherein the "n" is a replacement for the "ω" (omega) notation. Thus 20:5ω3 and 20:5n3 both specify a fatty acid that has 20 carbons, 5 double bonds, and is a member of the omega-3 (or n-3) series of fatty acids (i.e., the first double bond is at the third position from the methyl end of the fatty acid chain).

### Proximate composition

When compared with the raw samples of each species, the cooked samples exhibited an increase in protein content with a concomitant decrease in moisture content. Fat content of cooked samples either remained approximately the same or increased due to moisture loss (Dudek and Elkins 1986). The method of cooking can have a marked effect on fat content of the sample. Fat content can be either decreased by some methods or increased by others (Kinsella

et al. 1975). There is an inverse relationship between the lipid and moisture content of uncooked fish flesh, such that the sum of these two approximates 80% (Stansby 1962). This inverse relationship is elucidated by the Pearson Correlation Coefficient obtained for lipid vs. moisture content of the 40 species we examined. The coefficient was −0.82.

We found the largest variations in fat content between seasonal samples in the following fish species: striped mullet, crevalle jack, American shad, Spanish mackerel, ladyfish, southern kingfish (whiting), speckled hind, and bluefish. Most of these are considered high fat fish (with the exception of the speckled hind and the southern kingfish) that normally exhibit wide variations in fat content. The variation in the southern kingfish was probably also due to season of catch. The speckled hind samples varied widely in size; this is the probable reason for their variation in lipid content. Fat content varies not only from species to species, but also from individual to individual and from batch to batch of the same species harvested under different conditions or seasons (Stansby and Hall 1967). There is also variation in lipid content from one part of the fish to another (the concentration of lipids is lower near the tail than near the head) and in the different types of tissue analyzed, e.g., light muscle, dark muscle, or depot fat (Stansby 1962). The fish's environment (especially water temperature), size, age, and sex affect fat content as well (Stansby and Hall 1967; Stansby 1976). Perhaps the ultimate cause of variation is due to feed intake and related factors such as metabolism efficiency of the individual fish and the amount of energy required for active movement (Stansby 1962).

Our findings were comparable with previous proximate data reported by Webb et al. (1976), Sidwell (1981), Waters (1982), Anthony et al. (1983), and Mustafa and Medeiros (1985) for black sea bass, bluefish, channel catfish, Atlantic croaker, and spot. Spanish mackerel samples exhibited a large variation in the fat content, and the range we obtained was slightly lower than that reported by Sidwell (1981) and Gall et al. (1983).

Overall, striped mullet showed the largest variation in fat content. Data reported by Gruger et al. (1964), Deng et al. (1976), Exler and Weihrauch (1976), Viswanathan Nair and Gopakumar (1978), Finne et al. (1980), Sidwell (1981), and Vlieg (1984) show vastly differing values for the fat content in different seasonal samples of striped mullet. These data appear to be dependent not only upon the season and geographic location of the catch, but also upon the sexual maturity of the fish. Our range of values for fat content of American shad, red snapper, and weakfish was comparable to those published by Exler and Weihrauch (1976), Gordon and Roberts (1977), Kapsalis and Maller (1980), Gall et al. (1983), and Waters (1983).

For the 40 finfish species, in terms of mean values, fish with the lowest raw protein content were the goosefish, channel catfish, and Atlantic croaker. The Atlantic sharpnose shark and the scalloped hammerhead shark had the highest raw protein content. Sandbar shark, scalloped hammerhead shark, tiger shark, lemon shark, goosefish, and southern flounder exhibited the lowest raw fat content. American shad, spot, and striped mullet had the highest mean values for raw fat content.

## Fatty acid composition

The fat of fish occurs primarily as triglycerides and phospholipids. It is generally believed that the component fatty acids of phospholipids are somewhat more polyunsaturated than those of triglycerides (Stansby 1973). Depot fats generally consist largely of triglycerides, while the total lipids of muscle tissues can contain large proportions of phospholipids (Gruger 1967). Almost all fish, crustaceans, and molluscs contain phospholipids at a level of approximately 0.7% (wet weight) to maintain cellular integrity (Ackman 1973).

The fatty acids derived from fish or other marine species differ markedly in the degree of unsaturation and molecular chain length from those of plant and land animal sources. Marine species contain substantial amounts of n-3 fatty acids that have 20 and 22 carbon atoms and 5 or 6 double bonds per molecule (Stansby and Hall 1967). Vegetable oils are high in polyunsaturates, but most of these are n-6 fatty acids containing only 2 double bonds. Terrestrial animal oils contain n-6 fatty acids with up to 5 double bonds, but are also high in saturated fats (Gunstone and Norris 1983; Krzynowek 1985).

After compiling data on approximately 70 finfish species, Exler and Weihrauch (1976) noted some general trends concerning fatty acid composition. These are listed below:

(1) "Palmitic acid (16:0) is the most common saturated fatty acid;

(2) Among the monounsaturated fatty acids, 18:1 is usually present in larger quantities than 16:1, and some species have relatively large amounts of 20:1 and 22:1;

(3) Fish also contain several polyunsaturated fatty acids (18:4, 20:5, 22:5, and 22:6) not found in significant amounts in other foods;

(4) The relative amount of 20:5 plus 22:6 is generally high in all fish; and

(5) Polyunsaturated fatty acids are lower in those fish with higher amounts of monounsaturated fatty acids; the saturated fatty acids remain relatively constant." The Exler and Weihrauch (1976) data list several undefined isomers as one group (e.g., 22:1) and does not utilize the "n" notation.

We observed the same trends in our data.

Kapsalis and Maller (1980) analyzed fatty acids on several of the same species we analyzed, using packed column GLC which does not permit separation of several important fatty acids. Compared with their results, our data showed higher percentages of 22:6n3 and 16:0 for bluefish, goosefish, gag grouper, red porgy, tilefish, and weakfish. For American shad, they reported 10% 18:3 and/or 20:1 but no 20:3 and/or 22:1 present at all. Our American shad samples contained approximately 20% for each of the these monoenoic acids. It should be noted that the majority of 22:1 present in the shad were the 22:1n13 plus 22:1n11 isomers, not 22:1n9 (erucic acid). The trienes were present in trivial amounts. Several authors have stated that the Clupeidae (herring) family are distinguished by very high levels (up to 30%) of isomeric 20:1 and 22:1 fatty acids (Lambertsen and Braekkan 1965; Ackman and Eaton 1966; Ackman 1973), the major isomers of each chain length are 20:1n9 and 22:1n13 plus 22:1n11. However, we have found this to be applicable only to certain members of the family. Other data collected on hickory shad, (unpubl. data), thread herring and Spanish sardine (Hale 1984), and menhaden (Joseph 1985) showed relatively low percentages of isomeric 20:1 and 22:1 acids.

Samples of red snapper we analyzed showed some variation in the concentrations of 16:0, 18:2n6, and 22:6n3 from data reported by Exler and Weihrauch (1976) and Gall et al. (1983). Finne et al. (1980) examined the fatty acid composition of minced Atlantic croaker. Our percentages of 16:1n7, 18:1n9, and 20:1n9 components were lower than their values, but our value for 22:6n3 was twice as great in the lipids of this species. This may be due to the geographical source differences—Atlantic coast versus western Gulf of Mexico.

Several researchers have reported fatty acid data on channel catfish (Worthington et al. 1972; Exler and Weihrauch 1976; Mustafa

and Medeiros 1985). We found much lower amounts of 18:1n9 and 18:2n6 in our samples as compared with their samples. A probable explanation is that the catfish we analyzed were wild specimens caught in Lake Moultrie, South Carolina, whereas their studies were conducted on commercially-raised fish. The dietary intake of commercial catfish feed containing vegetable oils would explain the high percentages of 18:1n9 and 18:2n6 in cultured catfish (Worthington et al. 1972).

There have probably been more data collected and analyzed on the lipids and fatty acids of striped mullet than any other species except those (i.e., menhaden and herring) used in the production of commercial fish oils. The fatty acid compositions of mullet lipids are reported to be distinctive for their high content of odd carbon-chained fatty acids (Gruger et al. 1964; Sen and Schlenk 1964). Deng et al. (1976) found appreciable amounts of $C_{17}$ and $C_{19}$ fatty acids in some of their mullet samples (up to 10.7% $C_{17}$ and 2.5% $C_{19}$). We did not report $C_{17}$ and $C_{19}$ concentrations in mullet because the highest value was only 1.2%. It is postulated that these odd-chained fatty acids could originate from propionic acid derived from thetin in the diet of phytoplankton that mullets consume (Ackman 1965). A question has arisen as to whether the plankton diet of mullet differs significantly from that of menhaden. Mullet apparently graze both on surface skim and the bottom, ingesting primarily bacteria, free-floating unicellular algae (diatoms and dinoflagellates), detritus, and filamentous algae; whereas menhaden filter out zooplankton, *Spartina* detritus, and Chlorophytes (green algae and stoneworts) selectively by particle size (J. C. DeVane, Charleston Lab., Natl. Mar. Fish. Serv., NOAA, Charleston, SC 29412, pers. commun. Oct. 1986; Jeffries 1975). Our values on mullet were comparable to those of Gruger et al. (1964) and Finne et al. (1980). They differed in some components from data collected by Deng et al. (1976), Exler and Weihrauch (1976), and Viswanathan Nair and Gopakumar (1978). Deng's seasonal Florida mullet attained their largest size when the roe was near maturity (in November); spawning occurs around December. Our November samples followed the same trend, but with a much larger increase in fat content and marked changes in the amounts of 18:0, 16:1n7, and 22:6n3 fatty acids (16:1n7 increased 12%; while 18:0 and 22:6n3 decreased 8% and 14%, respectively) as compared with fish analyzed in February, May, and August. Seasonal differences in mullet fatty acid percentages can be influenced by maturity, size, and sex of the fish as well as the availability and nature of the food supply (Gruger 1967).

A similar phenomenon was observed in our September samples of bluefish and crevalle jack. The fat content markedly increased, while the 22:6n3 fatty acid concentration decreased approximately 25%. The amounts of 18:0 and 16:1n7 fatty acids in these two species did not show the same magnitude of change that occurred in the mullet. Seasonal increases in fat content are due to an increase in muscle depot fat rather than an increase in muscle phospholipids. Depot fats consist largely of triglycerides, whose component fatty acids are less polyunsaturated than those of phospholipids (Gruger 1967; Stansby 1973). Therefore, the negative correlation between fat content and 22:6n3 fatty acid levels for these three species was not surprising.

In certain fish species, e.g., dogfish and other sharks, up to 20% of the fatty acids in the flesh may occur as alkoxydiglycerides (Stansby 1973). Upon hydrolysis these yield the usual fatty acids plus glyceryl ethers. Structurally similar neutral plasmalogens (vinyl ethers) are also present as are sterols and hydrocarbons such as squalene, pristane, and zamene (Stansby and Hall 1967). We observed that odd peaks were appearing between the usual fatty acids on the chromatograms for all the analyzed shark samples (both raw and cooked). For example, the raw tiger shark sample collected in July 1985 showed peaks present between 14:0 and 16:0; between 16:0 and 18:0; and between 18:0 and 18:1n9 that could not be identified. These unknowns constituted approximately 6% of the total. Unknown peaks for the cooked sample comprised approximately 11% of the total. In all probability, these unknown components are dimethyl-acetals, artifacts resulting from the use of an acidic trans-esterification procedure on lipids containing plasmalogens. However, this has not been confirmed.

The proximate chemical composition and fatty acid profiles reported here were obtained as part of a national program to evaluate the edibility characteristics of various finfish species. We recognize that additional data are required to adequately describe the seasonal (and geographic) variations in the chemical compositions of many of these species. We believe, however, that the data reported here can be useful to both the scientific community and to consumers.

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**Table 1—Southeastern U.S. finfish evaluated for proximate and fatty acid composition. Nomenclature from American Fisheries Society (1980).**

| Species (Common name) | Scientific name | Species (Common name) | Scientific name |
|---|---|---|---|
| Barracuda, Great | *Sphyraena barracuda* | Mullet, Striped | *Mugil cephalus* |
| Bass, Black Sea | *Centropristis striata* | Pompano, Florida | *Trachinotus carolinus* |
| Bluefish | *Pomatomus saltatrix* | Porgy, Longspine | *Stenotomus caprinus* |
| Catfish, Channel | *Ictalurus punctatus* | Porgy, Red | *Pagrus pagrus* |
| Croaker, Atlantic | *Micropogonias undulatus* | Seatrout, Spotted | *Cynoscion nebulosus* |
| Dolphin | *Coryphaena hippurus* | Shad, American | *Alosa sapidissima* |
| Drum, Red | *Sciaenops ocellatus* | Shark, Atlantic Sharpnose | *Rhizoprionodon terraenovae* |
| Flounder, Southern | *Paralichthys lethostigma* | Shark, Lemon | *Negaprion brevirostris* |
| Goosefish (Monkfish) | *Lophius americanus* | Shark, Sandbar | *Carcharhinus plumbeus* |
| Grouper, Gag | *Mycteroperca microlepis* | Shark, Scalloped Hammerhead | *Sphyrna lewini* |
| Grouper, Scamp | *Mycteroperca phenax* | Shark, Tiger | *Galeocerdo cuvieri* |
| Grouper, Snowy | *Epinephelus niveatus* | Sheepshead | *Archosargus probatocephalus* |
| Grouper, Yellowedge | *Epinephelus flavolimbatus* | Snapper, Red | *Lutjanus campechanus* |
| Grunt, White | *Haemulon plumieri* | Snapper, Vermilion | *Rhomboplites aurorubens* |
| Hind, Speckled | *Epinephelus drummondhayi* | Spot | *Leiostomus xanthurus* |
| Jack, Crevalle | *Caranx hippos* | Swordfish | *Xiphias gladius* |
| Kingfish, Southern (Whiting) | *Menticirrhus americanus* | Tilefish | *Lopholatilus chamaeleonticeps* |
| Ladyfish | *Elops saurus* | Tilefish, Blueline | *Caulolatilus microps* |
| Mackerel, King | *Scomberomorus cavalla* | Triggerfish, Gray | *Balistes capriscus* |
| Mackerel, Spanish | *Scomberomorus maculatus* | Weakfish | *Cynoscion regalis* |

**Table 2—Means and ranges for proximate composition of 40 Southeastern U.S. finfish species (weight % of tissue sample).**

| Species | No. of samples | Protein | Moisture | Fat | Ash |
|---|---|---|---|---|---|
| Barracuda, Great | | | | | |
| raw | 2 | 22.2 | 77.0 | 1.0 | 1.4 |
| | | 20.4-23.9 | 76.9-77.0 | 0.8-1.3 | 1.3-1.4 |
| cooked | 2 | 27.0 | 72.6 | 1.6 | 1.3 |
| | | 24.7-29.2 | 71.3-74.0 | 1.0-2.2 | 1.3-1.3 |
| Bass, Black Sea | | | | | |
| raw | 2 | 18.0 | 81.2 | 0.7 | 1.4 |
| | | 17.8-18.2 | 81.2-81.3 | 0.6-0.8 | 1.1-1.7 |
| cooked | 1 | 26.1 | 73.0 | 1.0 | 1.2 |
| Bluefish | | | | | |
| raw | 4 | 20.1 | 77.9 | 2.4 | 1.0 |
| | | 18.5-22.2 | 72.4-80.8 | 0.6-7.2 | 0.9-1.1 |
| cooked | 4 | 26.0 | 71.3 | 3.5 | 1.1 |
| | | 23.6-28.6 | 65.5-73.7 | 0.6-10.6 | 0.9-1.2 |
| Catfish, Channel | | | | | |
| raw | 3 | 16.2 | 82.1 | 2.4 | 1.0 |
| | | 16.1-16.2 | 80.3-83.7 | 1.3-3.6 | 0.9-1.0 |
| cooked | 3 | 19.3 | 78.6 | 2.0 | 1.0 |
| | | 19.0-19.8 | 76.5-81.2 | 0.8-2.9 | 1.0-1.0 |
| Croaker, Atlantic | | | | | |
| raw | 3 | 16.8 | 80.1 | 2.2 | 1.0 |
| | | 14.8-18.3 | 77.6-83.2 | 0.8-4.0 | 0.9-1.2 |
| cooked | 3 | 24.1 | 74.2 | 2.1 | 1.1 |
| | | 23.7-24.4 | 73.7-75.0 | 1.2-3.4 | 1.0-1.2 |
| Dolphin | | | | | |
| raw | 3 | 20.2 | 79.7 | 0.8 | 1.2 |
| | | 18.0-22.1 | 78.7-80.7 | 0.6-1.1 | 1.1-1.2 |
| cooked | 3 | 27.2 | 72.5 | 1.2 | 1.3 |
| | | 26.0-28.2 | 71.8-73.4 | 1.0-1.3 | 1.1-1.4 |
| Drum, Red | | | | | |
| raw | 2 | 19.4 | 78.8 | 0.8 | 1.1 |
| | | 18.9-20.0 | 78.7-78.9 | 0.6-1.1 | 1.0-1.1 |
| cooked | 2 | 24.6 | 73.6 | 1.4 | 1.1 |
| | | 24.6-24.6 | 72.8-74.3 | 1.0-1.7 | 1.1-1.1 |
| Flounder, Southern | | | | | |
| raw | 2 | 17.4 | 82.4 | 0.6 | 0.9 |
| | | 16.3-18.5 | 81.9-82.8 | 0.5-0.8 | 0.8-1.0 |
| cooked | 2 | 20.4 | 78.4 | 0.8 | 1.0 |
| | | 18.8-22.1 | 76.9-79.9 | 0.6-1.0 | 0.8-1.1 |
| Goosefish | | | | | |
| raw | 4 | 16.0 | 83.8 | 0.6 | 0.9 |
| | | 15.2-16.6 | 82.8-85.6 | 0.4-0.7 | 0.9-1.0 |
| cooked | 3 | 24.6 | 75.9 | 0.8 | 0.9 |
| | | 23.2-25.8 | 74.0-76.9 | 0.5-1.0 | 0.8-1.0 |
| Grouper, Gag | | | | | |
| raw | 3 | 21.0 | 76.8 | 2.2 | 1.3 |
| | | 20.2-21.6 | 74.4-78.2 | 1.1-3.6 | 1.2-1.5 |
| cooked | 2 | 27.2 | 70.9 | 2.0 | 1.2 |
| | | 26.5-27.9 | 70.4-71.4 | 1.9-2.2 | 1.1-1.2 |
| Grouper, Scamp | | | | | |
| raw | 3 | 19.7 | 79.2 | 1.6 | 1.1 |
| | | 19.2-20.2 | 78.8-79.5 | 1.3-1.8 | 1.1-1.1 |
| cooked | 3 | 24.6 | 73.6 | 2.5 | 1.2 |
| | | 22.7-27.5 | 71.6-75.8 | 1.3-3.5 | 1.2-1.3 |
| Grouper, Snowy | | | | | |
| raw | 2 | 20.0 | 78.8 | 0.8 | 1.2 |
| | | 19.4-20.5 | 78.6-79.0 | 0.6-0.9 | 1.2-1.2 |
| cooked | 2 | 24.9 | 73.0 | 1.0 | 1.3 |
| | | 24.3-25.5 | 72.6-73.4 | 0.5-1.4 | 1.2-1.3 |
| Grouper, Yellowedge | | | | | |
| raw | 3 | 19.0 | 79.6 | 1.0 | 1.1 |
| | | 18.4-19.6 | 78.5-80.4 | 0.5-1.6 | 1.1-1.1 |
| cooked | 3 | 26.1 | 72.1 | 1.2 | 1.2 |
| | | 24.6-28.9 | 69.1-74.9 | 0.7-1.5 | 1.1-1.2 |
| Grunt, White | | | | | |
| raw | 3 | 20.5 | 80.9 | 0.7 | 1.1 |
| | | 19.4-21.6 | 80.2-82.0 | 0.6-1.0 | 1.0-1.1 |
| cooked | 3 | 25.0 | 76.1 | 1.0 | 1.2 |
| | | 23.7-26.0 | 75.4-77.1 | 0.8-1.5 | 1.1-1.2 |

**Table 2—(Continued).**

| Species | No. of samples | Protein | Moisture | Fat | Ash |
|---|---|---|---|---|---|
| Hind, Speckled | | | | | |
| raw | 4 | 20.6 | 75.9 | 4.4 | 1.1 |
| | | 19.2-22.1 | 72.1-80.0 | 1.2-7.4 | 1.1-1.2 |
| cooked | 4 | 26.2 | 69.2 | 4.7 | 1.2 |
| | | 25.3-27.9 | 66.7-72.3 | 1.6-9.0 | 1.1-1.2 |
| Jack, Crevalle | | | | | |
| raw | 4 | 21.1 | 74.2 | 3.9 | 1.3 |
| | | 20.1-22.4 | 68.6-77.8 | 1.0-11.3 | 1.1-1.4 |
| cooked | 3 | 25.8 | 69.0 | 4.9 | 1.4 |
| | | 24.6-26.4 | 63.3-72.2 | 1.1-11.8 | 1.1-1.5 |
| Kingfish, Southern | | | | | |
| raw | 3 | 18.4 | 78.2 | 3.5 | 1.0 |
| | | 17.8-19.5 | 74.2-80.3 | 1.0-7.9 | 1.0-1.1 |
| cooked | 3 | 23.5 | 74.1 | 3.5 | 1.1 |
| | | 22.0-26.4 | 70.9-76.6 | 1.4-7.0 | 1.0-1.2 |
| Ladyfish | | | | | |
| raw | 3 | 22.7 | 73.0 | 4.4 | 1.2 |
| | | 21.8-23.6 | 69.3-75.3 | 1.9-8.6 | 1.1-1.2 |
| cooked | 3 | 24.7 | 69.2 | 5.8 | 1.1 |
| | | 23.9-25.2 | 64.7-71.5 | 3.2-10.3 | 0.8-1.3 |
| Mackerel, King | | | | | |
| raw | 2 | 21.6 | 76.6 | 1.7 | 1.4 |
| | | 20.3-23.0 | 75.6-77.6 | 0.8-2.6 | 1.3-1.5 |
| cooked | 2 | 26.4 | 72.0 | 2.0 | 1.4 |
| | | 26.0-26.7 | 70.9-73.2 | 1.0-2.9 | 1.4-1.5 |
| Mackerel, Spanish | | | | | |
| raw | 2 | 19.8 | 75.4 | 4.8 | 1.3 |
| | | 19.6-19.9 | 71.8-78.9 | 0.7-8.9 | 1.2-1.4 |
| cooked | 2 | 23.4 | 70.2 | 6.6 | 1.2 |
| | | 22.5-24.2 | 65.6-74.9 | 1.2-12.0 | 0.9-1.6 |
| Mullet, Striped | | | | | |
| raw | 5 | 19.6 | 75.1 | 5.1 | 1.0 |
| | | 17.3-20.8 | 68.5-81.6 | 0.9-11.8 | 1.0-1.1 |
| cooked | 4 | 23.4 | 71.4 | 5.2 | 1.1 |
| | | 23.2-23.8 | 64.6-76.9 | 0.9-11.8 | 1.0-1.2 |
| Pompano, Florida | | | | | |
| raw | 2 | 18.4 | 77.8 | 2.8 | 1.1 |
| | | 18.2-18.7 | 76.1-79.5 | 1.7-4.0 | 1.0-1.2 |
| cooked | 2 | 22.3 | 72.3 | 3.5 | 1.2 |
| | | 22.3-22.3 | 69.7-74.9 | 1.1-5.9 | 1.2-1.3 |
| Porgy, Longspine | | | | | |
| raw | 2 | 17.8 | 80.1 | 1.4 | 1.0 |
| | | 16.9-18.6 | 78.0-82.2 | 1.3-1.6 | 1.0-1.0 |
| cooked | 1 | 23.4 | 75.4 | 2.6 | 1.0 |
| Porgy, Red | | | | | |
| raw | 2 | 21.9 | 77.2 | 1.0 | 1.5 |
| | | 21.4-22.4 | 76.7-77.8 | 0.7-1.3 | 1.4-1.5 |
| cooked | 1 | 27.3 | 73.3 | 0.8 | 1.6 |
| Seatrout, Spotted | | | | | |
| raw | 2 | 19.4 | 79.4 | 2.6 | 1.1 |
| | | 19.2-19.5 | 79.2-79.6 | 1.6-3.7 | 1.0-1.1 |
| cooked | 2 | 22.6 | 73.4 | 4.6 | 1.1 |
| | | 22.4-22.8 | 70.6-76.1 | 1.1-8.0 | 1.0-1.2 |
| Shad, American | | | | | |
| raw | 4 | 19.1 | 65.4 | 14.6 | 1.3 |
| | | 17.6-21.0 | 59.8-68.7 | 10.6-20.3 | 1.2-1.5 |
| cooked | 2 | 21.6 | 63.6 | 14.8 | 1.0 |
| | | 20.1-23.0 | 62.8-64.5 | 14.6-15.1 | 0.9-1.2 |
| Shark, Atlantic Sharpnose | | | | | |
| raw | 3 | 23.7 | 75.1 | 0.8 | 1.4 |
| | | 21.9-26.2 | 72.6-76.9 | 0.8-0.8 | 1.4-1.5 |
| cooked | 3 | 25.4 | 73.3 | 0.8 | 1.5 |
| | | 24.0-26.6 | 72.1-74.7 | 0.8-0.9 | 1.4-1.5 |
| Shark, Lemon | | | | | |
| raw | 2 | 19.7 | 79.4 | 0.6 | 1.2 |
| | | 19.5-19.9 | 79.1-79.8 | 0.5-0.6 | 1.1-1.4 |
| cooked | 2 | 24.6 | 74.4 | 0.8 | 1.3 |
| | | 23.4-25.8 | 73.3-75.5 | 0.7-0.8 | 1.2-1.4 |
| Shark, Sandbar | | | | | |
| raw | 1 | 18.2 | 81.1 | 0.5 | 1.2 |
| cooked | 1 | 25.7 | 73.1 | 0.9 | 1.2 |
| Shark, Scalloped Hammerhead | | | | | |
| raw | 2 | 23.1 | 76.0 | 0.6 | 1.4 |
| | | 22.4-23.8 | 75.0-76.9 | 0.5-0.8 | 1.2-1.5 |
| cooked | 2 | 29.2 | 69.7 | 0.9 | 1.4 |
| | | 27.2-31.1 | 68.0-71.4 | 0.8-0.9 | 1.2-1.5 |
| Shark, Tiger | | | | | |
| raw | 2 | 19.2 | 80.0 | 0.6 | 1.2 |
| | | 17.2-21.2 | 78.0-82.1 | 0.6-0.7 | 1.1-1.2 |
| cooked | 2 | 23.4 | 75.6 | 0.8 | 1.2 |
| | | 21.2-25.6 | 73.4-77.9 | 0.7-0.9 | 1.2-1.2 |
| Sheepshead | | | | | |
| raw | 3 | 21.4 | 77.9 | 1.6 | 1.2 |
| | | 20.2-22.4 | 76.6-79.7 | 1.2-1.9 | 1.1-1.3 |
| cooked | 3 | 23.8 | 73.7 | 2.0 | 1.3 |
| | | 22.1-25.7 | 72.4-75.4 | 1.6-2.4 | 1.2-1.3 |
| Snapper, Red | | | | | |
| raw | 3 | 19.7 | 78.9 | 1.2 | 1.1 |
| | | 18.5-21.2 | 76.4-81.1 | 0.7-1.5 | 0.9-1.2 |
| cooked | 3 | 24.7 | 73.3 | 1.7 | 1.2 |
| | | 24.4-25.1 | 71.7-74.4 | 0.5-3.2 | 1.1-1.3 |
| Snapper, Vermilion | | | | | |
| raw | 3 | 20.2 | 78.9 | 0.7 | 1.1 |
| | | 18.3-21.3 | 77.1-80.5 | 0.6-0.8 | 1.0-1.2 |
| cooked | 3 | 25.3 | 73.9 | 0.9 | 1.3 |
| | | 23.9-26.9 | 72.5-75.1 | 0.7-1.1 | 1.2-1.4 |
| Spot | | | | | |
| raw | 3 | 18.6 | 74.6 | 5.5 | 1.1 |
| | | 18.1-19.0 | 73.0-75.4 | 4.8-6.0 | 1.0-1.1 |
| cooked | 3 | 22.5 | 68.7 | 8.3 | 0.9 |
| | | 21.4-23.0 | 66.3-70.2 | 6.7-10.9 | 0.9-1.0 |
| Swordfish | | | | | |
| raw | 1 | 19.9 | 76.0 | 3.7 | 1.3 |
| cooked | 1 | 23.8 | 69.9 | 5.8 | 1.2 |
| Tilefish | | | | | |
| raw | 2 | 17.6 | 81.0 | 1.0 | 1.2 |
| | | 17.4-17.7 | 81.0-81.1 | 0.8-1.1 | 1.0-1.5 |
| cooked | 1 | 23.8 | 74.6 | 0.7 | 1.1 |
| Tilefish, Blueline | | | | | |
| raw | 3 | 19.7 | 77.7 | 3.2 | 1.3 |
| | | 18.6-21.1 | 76.7-78.9 | 1.4-4.8 | 1.1-1.5 |
| cooked | 3 | 25.1 | 72.2 | 3.2 | 1.2 |
| | | 23.8-25.9 | 70.7-73.4 | 1.9-5.7 | 1.1-1.3 |
| Triggerfish, Gray | | | | | |
| raw | 4 | 20.6 | 79.0 | 0.7 | 1.3 |
| | | 19.4-21.9 | 78.3-79.9 | 0.5-1.0 | 1.2-1.5 |
| cooked | 3 | 26.0 | 72.8 | 1.0 | 1.2 |
| | | 25.9-26.1 | 72.2-73.1 | 0.7-1.4 | 1.2-1.3 |
| Weakfish | | | | | |
| raw | 3 | 18.7 | 79.0 | 1.7 | 1.1 |
| | | 17.6-19.5 | 77.5-80.9 | 1.0-2.6 | 1.0-1.1 |
| cooked | 3 | 24.0 | 72.5 | 2.2 | 1.1 |
| | | 23.5-24.5 | 72.0-73.3 | 0.8-3.7 | 1.0-1.2 |

**Table 3—Means and ranges of selected fatty acids in 40 Southeastern U.S. finfish species (weight % of total fatty acids).**

| Species | No. of samples | 16:0 | 18:0 | 16:1n7 | 18:1n9 | 18:1n7 | 20:1n9 | 20:4n6 | 22:4n6 | 20:5n3 | 22:5n6 | 22:5n3 | 22:6n |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barracuda, Great | | | | | | | | | | | | | |
| raw | 2 | 27.2 | 9.0 | 4.6 | 14.2 | 3.2 | 0.6 | 3.7 | 1.0 | 2.4 | 1.4 | 2.6 | 20.4 |
| | | 24.9-29.6 | 8.4-9.5 | 4.1-5.2 | 11.5-16.8 | 3.0-3.5 | 0.5-0.6 | 3.1-4.3 | 0.9-1.0 | 2.0-2.9 | 1.1-1.7 | 2.2-3.0 | 11.9-28.9 |
| cooked | 2 | 22.6 | 9.6 | 3.8 | 11.6 | 3.0 | 0.6 | 5.0 | 1.3 | 2.9 | 1.9 | 3.2 | 17.1 |
| | | 19.6-25.6 | 9.4-9.7 | 2.7-4.9 | 10.5-12.7 | 2.7-3.4 | 0.6-0.6 | 3.7-6.3 | 0.9-1.7 | 2.8-2.9 | 1.5-2.3 | 3.1-3.3 | 16.4-17.8 |
| Bass, Black Sea | | | | | | | | | | | | | |
| raw | 2 | 20.0 | 8.4 | 3.4 | 12.3 | 3.1 | 0.8 | 4.8 | 1.3 | 4.9 | 2.0 | 2.4 | 23.4 |
| | | 18.9-21.2 | 8.3-8.4 | 3.0-3.9 | 9.8-14.8 | 2.4-3.8 | 0.5-1.1 | 4.1-5.6 | 0.8-1.8 | 2.8-7.0 | 1.5-2.5 | 2.2-2.6 | 21.9-24.9 |
| cooked | 1 | 20.4 | 7.8 | 3.2 | 15.0 | 2.5 | 0.6 | 5.4 | 2.0 | 2.9 | 2.3 | 3.0 | 20.9 |
| Bluefish | | | | | | | | | | | | | |
| raw | 3 | 21.2 | 8.1 | 4.4 | 12.7 | 3.4 | 1.5 | 2.2 | 0.4 | 4.7 | 0.9 | 2.7 | 21.1 |
| | | 18.3-24.3 | 7.1-9.1 | 1.5-9.2 | 9.6-18.0 | 2.9-4.3 | 1.2-1.7 | 1.4-3.2 | TR-0.6 | 3.9-5.2 | 0.4-1.5 | 2.4-3.4 | 4.1-33.6 |
| cooked | 3 | 21.1 | 8.0 | 5.0 | 12.8 | 3.5 | 2.7 | 2.0 | 0.4 | 4.7 | 0.8 | 2.7 | 16.7 |
| | | 16.9-24.7 | 6.7-8.9 | 2.1-9.3 | 9.8-18.0 | 3.1-4.3 | 1.2-5.1 | 1.3-2.8 | 0.2-0.5 | 3.6-5.6 | 0.4-1.3 | 2.3-3.5 | 3.4-28.5 |
| Catfish, Channel | | | | | | | | | | | | | |
| raw | 3 | 18.4 | 5.2 | 6.2 | 22.5 | 5.0 | 1.4 | 3.9 | 0.4 | 3.7 | 1.6 | 2.5 | 4.8 |
| | | 17.9-18.8 | 4.4-6.0 | 4.9-7.8 | 16.2-27.0 | 4.3-6.0 | 0.8-1.8 | 2.5-5.6 | TR-0.7 | 3.5-4.1 | 1.2-2.3 | 2.0-3.0 | 3.8-5.4 |
| cooked | 2 | 20.6 | 5.6 | 5.8 | 23.1 | 4.4 | 1.6 | 2.8 | 0.2 | 4.8 | 1.0 | 2.5 | 7.4 |
| | | 20.4-20.8 | 5.6-5.7 | 5.6-6.1 | 20.5-25.7 | 3.9-4.9 | 1.6-1.6 | 2.7-2.9 | TR-0.4 | 4.5-5.1 | 0.8-1.3 | 2.3-2.7 | 6.9-7.9 |
| Croaker, Atlantic | | | | | | | | | | | | | |
| raw | 3 | 25.0 | 6.9 | 11.0 | 12.0 | 2.4 | 0.8 | 3.2 | 0.7 | 4.5 | 0.6 | 2.2 | 6.4 |
| | | 23.0-28.5 | 6.7-7.2 | 9.9-13.1 | 9.9-13.5 | 2.2-2.6 | 0.8-0.8 | 2.6-3.7 | TR-1.2 | 4.0-5.1 | TR-1.0 | 1.9-2.5 | 4.5-7.5 |
| cooked | 1 | 23.5 | 7.6 | 8.0 | 10.0 | 2.8 | 0.8 | 4.1 | 1.4 | 5.3 | 1.3 | 3.0 | 10.2 |
| Dolphin | | | | | | | | | | | | | |
| raw | 3 | 17.7 | 12.5 | 1.6 | 8.7 | 2.2 | 0.3 | 3.7 | 0.1 | 3.5 | 2.5 | 1.4 | 31.1 |
| | | 15.5-18.9 | 12.3-12.7 | 1.1-2.1 | 7.8-9.6 | 2.1-2.3 | 0.2-0.5 | 3.1-4.5 | TR-0.2 | 3.0-4.1 | 2.2-2.7 | 1.4-1.5 | 28.3-36.5 |
| cooked | 3 | 16.4 | 13.0 | 1.1 | 8.0 | 2.1 | 0.1 | 3.7 | 0.2 | 3.3 | 2.6 | 1.7 | 31.9 |
| | | 13.8-18.5 | 12.7-13.4 | 1.0-1.3 | 6.8-8.9 | 2.1-2.2 | TR-0.2 | 3.2-4.3 | TR-0.4 | 3.0-3.7 | 2.4-2.9 | 1.4-1.9 | 28.6-36.2 |
| Drum, Red | | | | | | | | | | | | | |
| raw | 2 | 20.7 | 7.1 | 4.1 | 11.3 | 2.6 | 0.6 | 4.6 | 1.3 | 3.8 | 2.2 | 3.2 | 18.2 |
| | | 19.6-21.8 | 6.3-7.9 | 1.5-6.7 | 7.9-14.7 | 2.4-2.9 | 0.4-0.8 | 3.0-6.3 | 0.7-1.9 | 3.7-4.0 | 1.1-3.4 | 2.4-4.1 | 13.2-23.2 |
| cooked | 2 | 18.9 | 9.0 | 4.2 | 10.7 | 3.0 | 0.7 | 4.9 | 1.3 | 4.0 | 2.2 | 3.6 | 17.5 |
| | | 15.6-22.2 | 7.1-10.9 | 1.4-7.0 | 8.3-13.1 | 3.0-3.0 | 0.6-0.8 | 2.9-6.9 | 0.6-2.0 | 3.6-4.3 | 1.5-2.9 | 2.3-4.8 | 13.9-21.1 |
| Flounder, Southern | | | | | | | | | | | | | |
| raw | 2 | 21.6 | 5.8 | 4.6 | 9.1 | 2.8 | 0.7 | 3.0 | 0.5 | 3.6 | 1.4 | 3.0 | 21.7 |
| | | 20.1-23.2 | 5.8-5.9 | 3.7-5.5 | 8.6-9.6 | 2.3-3.3 | 0.6-0.8 | 2.5-3.4 | 0.2-0.8 | 2.9-4.3 | 1.2-1.6 | 2.9-3.1 | 17.8-25.6 |
| cooked | 2 | 21.0 | 6.0 | 4.1 | 8.6 | 2.6 | 0.6 | 3.2 | 0.7 | 3.8 | 1.4 | 3.1 | 21.6 |
| | | 19.9-22.1 | 5.4-6.7 | 3.7-4.5 | 7.8-9.3 | 2.3-3.0 | 0.6-0.7 | 3.0-3.4 | 0.6-0.8 | 3.1-4.6 | 1.4-1.5 | 3.1-3.1 | 20.2-23.0 |
| Goosefish | | | | | | | | | | | | | |
| raw | 2 | 18.0 | 7.3 | 2.6 | 12.8 | 3.0 | 0.9 | 4.1 | 0.5 | 7.0 | 1.4 | 1.8 | 24.4 |
| | | 14.4-21.7 | 6.8-7.8 | 2.5-2.8 | 8.8-16.9 | 2.9-3.2 | 0.4-1.4 | 2.7-5.5 | 0.4-0.6 | 5.1-8.8 | 0.9-2.0 | 1.6-2.1 | 23.0-25.8 |
| cooked | 1 | 18.8 | 8.4 | 2.5 | 9.8 | 3.4 | 2.0 | 5.2 | 0.5 | 7.9 | 1.8 | 1.7 | 25.5 |
| Grouper, Gag | | | | | | | | | | | | | |
| raw | 3 | 25.2 | 8.2 | 7.7 | 15.5 | 3.0 | 1.0 | 2.9 | 0.7 | 3.4 | 1.3 | 1.9 | 15.4 |
| | | 24.5-26.5 | 7.0-9.1 | 6.2-8.6 | 13.5-18.4 | 2.7-3.4 | 0.6-1.2 | 2.3-3.5 | 0.4-0.9 | 2.9-4.3 | 1.0-1.4 | 1.4-2.4 | 11.0-19.5 |
| cooked | 2 | 23.5 | 8.4 | 6.5 | 15.0 | 3.0 | 0.9 | 3.0 | 0.6 | 3.8 | 1.4 | 1.9 | 17.4 |
| | | 23.0-24.0 | 8.0-8.8 | 6.1-6.9 | 13.1-17.0 | 2.8-3.1 | 0.6-1.2 | 2.8-3.3 | 0.3-1.0 | 3.0-4.7 | 1.1-1.6 | 1.3-2.5 | 12.6-22.1 |
| Grouper, Scamp | | | | | | | | | | | | | |
| raw | 1 | 23.9 | 8.2 | 5.2 | 12.1 | 2.4 | 1.0 | 2.4 | 0.6 | 2.5 | 2.0 | 2.3 | 20.9 |
| cooked | 2 | 26.0 | 7.8 | 6.8 | 13.6 | 2.2 | 0.8 | 2.2 | 0.4 | 2.4 | 1.8 | 1.7 | 19.8 |
| | | 25.7-26.4 | 6.7-8.9 | 4.4-9.2 | 11.0-16.1 | 2.1-2.4 | 0.7-0.9 | 1.7-2.7 | 0.3-0.6 | 2.3-2.5 | 1.3-2.2 | 1.4-2.0 | 17.4-22.3 |
| Grouper, Snowy | | | | | | | | | | | | | |
| raw | 1 | 17.7 | 6.4 | 2.7 | 13.6 | 2.6 | 3.4 | 4.0 | 0.8 | 3.2 | 1.9 | 2.7 | 22.4 |
| cooked | 1 | 18.7 | 6.5 | 2.1 | 12.0 | 2.4 | 2.8 | 4.9 | 0.9 | 3.7 | 2.2 | 2.7 | 25.0 |
| Grouper, Yellowedge | | | | | | | | | | | | | |
| raw | 2 | 17.5 | 6.0 | 3.3 | 9.4 | 2.8 | 3.3 | 3.4 | 0.9 | 3.3 | 1.8 | 2.8 | 20.2 |
| | | 17.1-17.9 | 5.8-6.1 | 2.0-4.6 | 7.6-11.2 | 2.1-3.5 | 3.2-3.4 | 2.4-4.3 | 0.8-1.0 | 3.2-3.4 | 1.1-2.5 | 2.5-3.2 | 17.4-23.1 |
| cooked | 2 | 18.0 | 6.4 | 2.4 | 11.6 | 2.2 | 3.7 | 4.1 | 0.9 | 3.3 | 2.0 | 2.5 | 22.5 |
| | | 15.4-20.6 | 5.5-7.2 | 1.9-2.8 | 10.5-12.7 | 2.1-2.4 | 2.1-5.3 | 3.4-4.8 | 0.9-0.9 | 3.3-3.3 | 1.9-2.2 | 2.5-2.5 | 18.0-27.0 |
| Grunt, White | | | | | | | | | | | | | |
| raw | 3 | 18.2 | 9.5 | 2.7 | 11.9 | 2.9 | 0.5 | 9.7 | 2.1 | 5.9 | 2.0 | 2.6 | 18.0 |
| | | 17.8-19.0 | 9.1-9.7 | 1.5-4.4 | 10.2-13.0 | 2.1-4.0 | 0.3-0.9 | 6.2-12.0 | 1.7-2.4 | 5.6-6.5 | 1.2-2.4 | 2.4-2.8 | 10.6-23.1 |
| cooked | 3 | 18.1 | 9.3 | 2.6 | 12.1 | 2.8 | 0.4 | 10.6 | 2.0 | 6.5 | 2.0 | 2.5 | 16.8 |
| | | 17.2-19.1 | 8.6-9.8 | 1.7-3.6 | 10.6-13.5 | 2.0-3.5 | 0.2-0.6 | 7.3-12.7 | 1.8-2.2 | 6.3-6.8 | 1.5-2.4 | 2.4-2.6 | 12.1-19.5 |

TR (trace) = <0.1%.

**Table 3—(Continued).**

| Species | No. of samples | 16:0 | 18:0 | 16:1n7 | 18:1n9 | 18:1n7 | 20:1n9 | 20:4n6 | 22:4n6 | 20:5n3 | 22:5n6 | 22:5n3 | 22:6n |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hind, Speckled | | | | | | | | | | | | | |
| raw | 3 | 29.4 | 8.3 | 9.0 | 15.4 | 2.6 | 1.4 | 1.8 | 0.5 | 2.7 | 0.9 | 1.9 | 12.4 |
| | | 26.5-32.6 | 7.3-9.8 | 5.6-11.0 | 11.3-18.5 | 2.4-2.8 | 1.1-1.8 | 0.9-3.2 | 0.3-0.9 | 1.4-4.2 | 0.5-1.2 | 1.2-2.6 | 6.4-19.0 |
| cooked | 3 | 26.5 | 8.1 | 7.7 | 13.6 | 2.4 | 1.3 | 2.6 | 0.8 | 3.1 | 1.2 | 2.0 | 15.2 |
| | | 25.0-29.0 | 6.5-9.7 | 4.8-10.3 | 10.4-15.8 | 2.3-2.5 | 0.9-1.5 | 1.3-3.8 | 0.6-1.0 | 2.2-4.5 | 0.8-1.5 | 1.5-2.7 | 8.8-21.6 |
| Jack, Crevalle | | | | | | | | | | | | | |
| raw | 4 | 22.4 | 10.8 | 4.0 | 13.7 | 3.4 | 0.6 | 4.0 | 1.0 | 3.8 | 1.6 | 2.4 | 16.2 |
| | | 19.6-27.2 | 8.5-13.8 | 1.8-7.8 | 8.9-20.9 | 2.9-4.1 | 0.4-0.8 | 2.1-5.7 | 0.5-1.5 | 2.9-4.4 | 0.5-2.4 | 1.4-3.0 | 3.3-25.8 |
| cooked | 3 | 22.9 | 14.0 | 4.0 | 14.6 | 4.0 | 0.6 | 3.9 | 0.7 | 3.4 | 1.3 | 1.8 | 14.5 |
| | | 20.2-27.7 | 9.1-16.7 | 1.9-7.4 | 10.9-20.8 | 3.8-4.2 | 0.4-0.7 | 2.2-5.6 | 0.5-0.8 | 2.9-3.6 | 0.6-1.8 | 1.4-2.1 | 3.7-21.3 |
| Kingfish, Southern | | | | | | | | | | | | | |
| raw | 2 | 29.7 | 5.5 | 15.9 | 17.8 | 3.0 | 0.6 | 2.2 | 0.8 | 2.8 | 0.6 | 1.6 | 5.4 |
| | | 28.0-31.4 | 4.8-6.2 | 14.1-17.7 | 14.2-21.5 | 2.8-3.3 | 0.6-0.6 | 1.5-2.8 | 0.6-0.9 | 1.4-4.2 | 0.4-0.8 | 1.3-2.0 | 4.1-6.8 |
| cooked | 1 | 31.0 | 5.0 | 17.0 | 18.3 | 2.8 | 0.6 | 1.7 | 0.7 | 2.6 | 0.5 | 1.6 | 5.1 |
| Ladyfish | | | | | | | | | | | | | |
| raw | 3 | 27.6 | 8.0 | 6.9 | 23.3 | 3.2 | 0.9 | 3.2 | 0.9 | 2.5 | 0.8 | 2.1 | 7.5 |
| | | 25.3-30.6 | 7.5-8.6 | 6.0-8.6 | 19.1-30.0 | 2.5-4.0 | 0.8-1.0 | 1.3-5.0 | 0.4-1.2 | 1.7-3.2 | 0.4-1.1 | 1.4-2.8 | 4.8-10.0 |
| cooked | 3 | 28.5 | 8.1 | 7.2 | 23.9 | 3.4 | 0.9 | 2.8 | 0.8 | 2.2 | 0.7 | 1.9 | 6.6 |
| | | 25.9-30.6 | 7.4-8.6 | 6.2-8.7 | 19.6-30.3 | 2.5-4.3 | 0.8-1.0 | 1.3-3.7 | 0.4-1.2 | 1.7-2.8 | 0.4-0.9 | 1.4-2.7 | 4.7-8.3 |
| Mackerel, King | | | | | | | | | | | | | |
| raw | 2 | 25.0 | 10.6 | 3.4 | 14.9 | 3.2 | 1.0 | 3.6 | 0.6 | 5.2 | 1.4 | 1.8 | 10.9 |
| | | 21.6-28.4 | 10.0-11.1 | 3.2-3.5 | 8.6-21.2 | 2.8-3.6 | 0.4-1.5 | 1.7-5.5 | 0.5-0.8 | 1.6-8.9 | 1.0-1.7 | 1.0-2.5 | 7.8-14.0 |
| cooked | 1 | 20.4 | 10.6 | 3.2 | 8.9 | 3.0 | 0.5 | 5.4 | 0.8 | 8.4 | 1.6 | 2.4 | 13.0 |
| Mackerel, Spanish | | | | | | | | | | | | | |
| raw | 2 | 26.4 | 9.7 | 4.2 | 18.2 | 4.0 | 1.0 | 1.8 | 0.4 | 3.9 | 1.0 | 1.3 | 15.0 |
| | | 26.0-26.8 | 7.6-11.8 | 3.4-4.9 | 17.3-19.0 | 4.0-4.0 | 0.9-1.0 | 1.5-2.2 | 0.3-0.4 | 3.0-4.8 | 0.7-1.2 | 1.2-1.4 | 14.5-15.6 |
| cooked | 1 | 25.8 | 8.3 | 4.4 | 20.6 | 4.1 | 1.1 | 1.6 | 0.3 | 4.6 | 0.7 | 1.4 | 14.1 |
| Mullet, Striped | | | | | | | | | | | | | |
| raw | 3 | 24.4 | 4.9 | 12.4 | 5.5 | 2.6 | 0.2 | 4.0 | 0.5 | 7.5 | 0.6 | 4.1 | 7.1 |
| | | 22.4-27.3 | 2.3-10.1 | 4.1-18.0 | 4.7-6.2 | 2.2-3.0 | 0.2-0.3 | 2.2-6.9 | 0.2-0.8 | 6.6-8.2 | TR-1.6 | 3.4-5.0 | 2.3-16.4 |
| cooked | 2 | 24.2 | 6.8 | 10.0 | 7.4 | 2.8 | 0.4 | 5.6 | 0.6 | 7.0 | 1.1 | 4.2 | 7.4 |
| | | 20.2-28.1 | 2.9-10.8 | 2.5-17.5 | 4.9-10.0 | 2.7-3.0 | 0.2-0.6 | 2.2-9.0 | 0.1-1.2 | 6.7-7.3 | TR-2.2 | 3.7-4.8 | 2.8-12.0 |
| Pompano, Florida | | | | | | | | | | | | | |
| raw | 1 | 28.9 | 11.6 | 3.3 | 25.3 | 2.3 | 1.9 | 1.5 | 0.8 | 1.3 | 0.8 | 2.1 | 6.1 |
| cooked | 1 | 28.8 | 11.7 | 3.2 | 24.7 | 2.2 | 1.8 | 1.7 | 0.9 | 1.4 | 0.9 | 2.0 | 6.3 |
| Porgy, Longspine | | | | | | | | | | | | | |
| raw | 2 | 18.2 | 7.4 | 3.6 | 15.8 | 3.9 | 1.8 | 2.5 | 0.9 | 7.7 | 0.8 | 4.7 | 13.6 |
| | | 17.9-18.4 | 7.2-7.6 | 3.1-4.2 | 12.5-19.1 | 3.8-4.0 | 1.7-1.8 | 2.3-2.7 | 0.9-0.9 | 7.0-8.4 | 0.6-0.9 | 4.2-5.2 | 11.0-16.3 |
| cooked | 1 | 17.4 | 7.5 | 3.7 | 15.9 | 4.1 | 1.8 | 2.3 | 0.8 | 8.0 | 0.7 | 4.7 | 13.2 |
| Porgy, Red | | | | | | | | | | | | | |
| raw | 2 | 21.2 | 6.8 | 2.2 | 9.5 | 2.2 | 0.8 | 3.4 | 1.3 | 3.7 | 2.0 | 2.8 | 27.3 |
| | | 20.2-22.2 | 6.4-7.3 | 1.9-2.4 | 9.4-9.6 | 2.1-2.2 | 0.6-1.1 | 2.7-4.1 | 1.0-1.6 | 2.6-4.8 | 1.9-2.2 | 2.7-2.9 | 25.7-28.9 |
| cooked | 1 | 19.6 | 6.3 | 1.8 | 8.2 | 2.0 | 0.5 | 2.9 | 0.9 | 4.4 | 1.9 | 2.6 | 29.5 |
| Seatrout, Spotted | | | | | | | | | | | | | |
| raw | 2 | 24.9 | 6.5 | 12.2 | 14.3 | 3.7 | 0.6 | 2.4 | 0.8 | 4.8 | 1.0 | 1.8 | 8.6 |
| | | 22.0-27.8 | 5.5-7.5 | 8.3-16.2 | 9.7-18.9 | 3.6-3.7 | 0.6-0.6 | 1.8-3.0 | 0.7-0.9 | 4.2-5.4 | 0.8-1.2 | 1.6-2.1 | 6.0-11.2 |
| cooked | 2 | 25.1 | 7.4 | 12.0 | 14.8 | 3.6 | 0.5 | 3.2 | 0.3 | 4.6 | 0.7 | 2.0 | 9.8 |
| | | 22.7-27.5 | 5.1-9.8 | 6.6-17.3 | 10.1-19.4 | 3.6-3.6 | 0.5-0.5 | 2.3-4.0 | TR-0.6 | 4.2-5.0 | TR-1.4 | 1.5-2.6 | 5.6-13.9 |
| Shad, American | | | | | | | | | | | | | |
| raw | 4 | 12.6 | 2.2 | 2.6 | 7.6 | 2.3 | 19.8 | 0.2 | 0.1 | 3.7 | 0.1 | 1.5 | 6.5 |
| | | 12.3-13.1 | 2.0-2.6 | 2.3-2.9 | 7.1-8.0 | 2.0-2.7 | 18.4-20.6 | 0.2-0.3 | TR-0.3 | 3.4-4.0 | TR-0.2 | 1.3-1.8 | 4.9-7.2 |
| cooked | 1 | 12.0 | 2.0 | 2.7 | 7.4 | 2.2 | 20.1 | 0.3 | TR | 3.9 | TR | 1.5 | 6.2 |
| Shark, Atlantic Sharpnose | | | | | | | | | | | | | |
| raw | 3 | 16.6 | 14.1 | 0.9 | 6.3 | 3.7 | 0.4 | 7.8 | 5.8 | 2.2 | 3.2 | 3.3 | 18.5 |
| | | 15.8-18.2 | 10.4-16.0 | 0.8-1.0 | 6.1-6.5 | 3.6-3.9 | 0.3-0.5 | 6.6-9.6 | 5.1-6.2 | 1.8-3.0 | 2.8-3.7 | 3.0-3.5 | 18.1-19.0 |
| cooked | 3 | 16.2 | 14.9 | 1.0 | 6.6 | 3.9 | 1.3 | 8.1 | 5.4 | 2.4 | 3.0 | 3.1 | 18.1 |
| | | 15.0-17.3 | 10.3-17.3 | 0.8-1.2 | 6.4-6.8 | 3.3-4.4 | 0.2-3.2 | 6.8-9.7 | 4.5-6.4 | 2.1-2.7 | 2.8-3.2 | 2.6-3.4 | 17.2-19.2 |
| Shark, Lemon | | | | | | | | | | | | | |
| raw | 3 | 15.2 | 11.9 | 1.5 | 8.9 | 4.6 | 0.5 | 5.8 | 6.2 | 2.1 | 2.3 | 3.5 | 15.5 |
| | | 12.2-17.1 | 8.4-14.8 | 1.1-2.0 | 6.5-11.5 | 3.1-6.6 | TR-0.8 | 4.4-8.4 | 4.2-8.8 | 0.9-3.2 | 1.3-2.9 | 1.8-5.3 | 9.0-21.0 |
| cooked | 3 | 15.9 | 12.4 | 1.5 | 9.2 | 4.7 | 0.9 | 5.9 | 7.4 | 2.1 | 2.6 | 3.8 | 16.2 |
| | | 14.8-17.3 | 9.7-15.0 | 1.1-1.7 | 6.7-11.6 | 3.6-6.4 | 0.7-1.1 | 4.5-8.4 | 4.0-12.2 | 0.9-3.1 | 1.1-3.9 | 2.4-5.3 | 11.3-20.6 |
| Shark, Sandbar | | | | | | | | | | | | | |
| raw | 1 | 12.9 | 12.1 | 0.8 | 6.9 | 3.9 | 0.4 | 13.8 | 6.8 | 1.4 | 3.4 | 1.2 | 12.0 |
| Shark, Scalloped Hammerhead | | | | | | | | | | | | | |
| raw | 2 | 14.0 | 12.7 | 1.4 | 8.9 | 5.0 | 0.8 | 6.2 | 6.9 | 2.0 | 2.4 | 4.1 | 15.1 |
| | | 13.2-14.9 | 8.9-16.5 | 0.7-2.1 | 5.2-12.6 | 4.9-5.2 | 0.5-1.0 | 5.0-7.4 | 5.4-8.4 | 1.1-2.9 | 1.8-3.1 | 2.8-5.4 | 11.3-18.9 |
| cooked | 2 | 14.2 | 13.1 | 1.5 | 9.0 | 5.4 | 0.8 | 6.3 | 6.8 | 2.0 | 2.3 | 4.1 | 14.3 |
| | | 13.6-14.9 | 9.5-16.7 | 0.7-2.3 | 5.3-12.8 | 5.2-5.6 | 0.5-1.1 | 5.3-7.3 | 5.2-8.3 | 1.2-2.7 | 1.6-3.0 | 2.8-5.4 | 10.9-17.7 |

**Table 3—(Continued).**

| Species | No. of samples | 16:0 | 18:0 | 16:1n7 | 18:1n9 | 18:1n7 | 20:1n9 | 20:4n6 | 22:4n6 | 20:5n3 | 22:5n6 | 22:5n3 | 22:6n |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shark, Tiger | | | | | | | | | | | | | |
| raw | 2 | 10.2 | 15.6 | 1.9 | 19.0 | 4.4 | 0.6 | 9.6 | 2.8 | 1.6 | 1.5 | 2.4 | 11.3 |
| | | 8.7-11.6 | 13.3-17.8 | 1.6-2.2 | 16.9-21.0 | 4.1-4.6 | 0.4-0.8 | 8.1-11.0 | 2.5-3.0 | 1.3-1.9 | 1.4-1.6 | 1.7-3.1 | 10.2-12.4 |
| cooked | 1 | 9.5 | 19.3 | 1.7 | 18.6 | 4.4 | 0.8 | 11.6 | 3.0 | 1.2 | 1.6 | 2.0 | 9.9 |
| Sheepshead | | | | | | | | | | | | | |
| raw | 3 | 23.0 | 6.4 | 6.3 | 20.2 | 3.2 | 0.8 | 4.6 | 1.1 | 3.9 | 0.9 | 2.8 | 6.4 |
| | | 22.8-23.1 | 5.3-7.0 | 5.1-8.0 | 15.9-27.6 | 3.1-3.2 | 0.6-1.0 | 3.2-7.0 | 0.8-1.6 | 2.5-4.8 | 0.5-1.2 | 2.1-3.3 | 4.2-8.2 |
| cooked | 3 | 22.6 | 6.8 | 6.7 | 23.0 | 3.5 | 0.9 | 4.9 | 1.1 | 3.7 | 0.7 | 2.7 | 5.8 |
| | | 21.8-23.7 | 5.4-7.7 | 4.7-9.2 | 18.4-30.8 | 3.2-3.7 | 0.6-1.1 | 2.9-6.7 | 0.7-1.6 | 2.1-4.9 | 0.4-0.9 | 1.7-3.2 | 3.1-8.8 |
| Snapper, Red | | | | | | | | | | | | | |
| raw | 2 | 23.8 | 9.3 | 4.2 | 17.0 | 2.7 | 1.2 | 2.8 | 0.7 | 3.4 | 1.3 | 1.9 | 18.7 |
| | | 22.4-25.2 | 8.5-10.1 | 4.0-4.4 | 15.3-18.7 | 2.4-3.0 | 1.0-1.5 | 2.1-3.5 | 0.6-0.8 | 3.0-3.9 | 1.2-1.3 | 1.7-2.1 | 16.9-20.5 |
| cooked | 1 | 25.1 | 9.9 | 3.9 | 14.2 | 3.0 | 0.8 | 3.2 | 0.8 | 4.0 | 1.3 | 2.1 | 20.2 |
| Snapper, Vermilion | | | | | | | | | | | | | |
| raw | 1 | 20.6 | 8.9 | 1.4 | 7.0 | 1.6 | 0.9 | 4.2 | 0.8 | 3.2 | 3.5 | 1.4 | 26.3 |
| cooked | 1 | 21.2 | 8.6 | 1.2 | 6.3 | 1.3 | 0.6 | 4.2 | 0.7 | 3.0 | 3.7 | 1.2 | 28.7 |
| Spot | | | | | | | | | | | | | |
| raw | 1 | 25.7 | 7.2 | 9.0 | 17.8 | 3.1 | 1.5 | 1.4 | 0.7 | 3.0 | 0.5 | 1.8 | 4.6 |
| Swordfish | | | | | | | | | | | | | |
| raw | 1 | 16.9 | 5.0 | 3.1 | 26.6 | 2.5 | 4.3 | 1.8 | 0.6 | 2.9 | 1.0 | 2.5 | 17.9 |
| cooked | 1 | 17.7 | 5.8 | 2.9 | 29.1 | 2.3 | 5.3 | 1.5 | 0.6 | 2.2 | 0.8 | 2.2 | 12.2 |
| Tilefish | | | | | | | | | | | | | |
| raw | 2 | 18.8 | 5.4 | 4.1 | 17.2 | 3.8 | 2.9 | 2.4 | 1.0 | 2.8 | 1.2 | 3.4 | 20.3 |
| | | 18.6-18.9 | 5.2-5.6 | 3.2-5.0 | 16.4-18.0 | 3.2-4.3 | 2.8-2.9 | 2.3-2.6 | 0.9-1.0 | 2.4-3.3 | 1.1-1.4 | 3.0-3.9 | 17.2-23.4 |
| cooked | 1 | 18.0 | 5.8 | 3.7 | 17.8 | 3.6 | 3.4 | 2.3 | 0.8 | 2.6 | 1.2 | 2.8 | 19.0 |
| Tilefish, Blueline | | | | | | | | | | | | | |
| raw | 2 | 21.0 | 6.6 | 4.6 | 17.5 | 3.4 | 3.0 | 2.2 | 1.1 | 2.8 | 1.2 | 3.4 | 13.8 |
| | | 17.8-24.2 | 5.3-8.0 | 4.3-4.9 | 14.3-20.7 | 3.2-3.7 | 1.7-4.2 | 1.7-2.7 | 0.8-1.4 | 2.8-2.8 | 0.7-1.8 | 3.2-3.6 | 12.6-15.0 |
| cooked | 2 | 21.8 | 7.8 | 4.1 | 18.0 | 3.8 | 2.8 | 2.6 | 0.9 | 2.9 | 1.3 | 3.3 | 15.0 |
| | | 18.7-25.0 | 6.1-9.5 | 3.9-4.3 | 15.9-20.0 | 3.6-3.9 | 2.0-3.5 | 2.2-3.0 | 0.8-1.0 | 2.6-3.2 | 0.8-1.8 | 3.2-3.4 | 13.4-16.6 |
| Triggerfish, Gray | | | | | | | | | | | | | |
| raw | 2 | 14.7 | 12.1 | 1.0 | 10.3 | 3.4 | 0.3 | 11.0 | 1.0 | 4.2 | 1.5 | 2.3 | 24.4 |
| | | 14.0-15.4 | 10.8-13.4 | 0.6-1.4 | 9.0-11.6 | 3.1-3.6 | 0.3-0.3 | 8.0-13.9 | 0.9-1.1 | 3.6-4.7 | 1.4-1.6 | 1.8-2.8 | 20.2-28.5 |
| cooked | 1 | 16.3 | 13.5 | 1.5 | 9.3 | 3.8 | 0.3 | 13.7 | 1.0 | 4.8 | 1.3 | 1.9 | 19.2 |
| Weakfish | | | | | | | | | | | | | |
| raw | 2 | 21.0 | 5.1 | 7.4 | 15.1 | 2.3 | 4.8 | 1.2 | 0.2 | 3.8 | 0.6 | 1.4 | 13.2 |
| | | 19.8-22.2 | 5.0-5.1 | 6.5-8.2 | 13.2-17.0 | 2.0-2.6 | 3.5-6.2 | 1.1-1.2 | 0.2-0.2 | 3.7-3.8 | 0.5-0.6 | 1.4-1.4 | 13.0-13.5 |
| cooked | 2 | 21.2 | 5.5 | 7.0 | 15.0 | 2.3 | 4.9 | 1.2 | 0.2 | 3.6 | 0.6 | 1.4 | 12.8 |
| | | 20.0-22.3 | 5.2-5.8 | 5.8-8.2 | 12.7-17.2 | 2.0-2.6 | 3.9-5.9 | 1.0-1.3 | 0.1-0.2 | 3.5-3.7 | 0.4-0.7 | 1.3-1.5 | 11.0-14.5 |

# Tables 4 to 43—Seasonal chemical composition of Southeastern U.S. finfish by species.

**Tables 4—Barracuda, Great**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 8-83 | 9-83 | 6-85 | 8-83 | 9-83 | 6-85 |
| Mean cm[1] | ND[2] | 142.2 | 73.2 | — | — | — |
| Mean kg[1] | ND | 11.79 | 2.61 | — | — | — |
| **Proximate Compositions** (weight % of tissue sample). | | | | | | |
| Protein | 20.4 | ND | 23.9 | 24.7 | ND | 29.2 |
| Moisture | 76.9 | ND | 77.0 | 74.0 | ND | 71.3 |
| Fat | 0.8 | ND | 1.3 | 1.0 | ND | 2.2 |
| Ash | 1.3 | ND | 1.4 | 1.3 | ND | 1.3 |
| **Fatty Acids** (weight % of total fatty acids). | | | | | | |
| 14:0 | ND | 1.4 | 1.4 | ND | 1.6 | 1.7 |
| 16:0 | ND | 29.6 | 24.9 | ND | 19.6 | 25.6 |
| 18:0 | ND | 8.4 | 9.5 | ND | 9.4 | 9.7 |
| 16:1n7 | ND | 5.2 | 4.1 | ND | 2.7 | 4.9 |
| 18:1n9 | ND | 16.8 | 11.5 | ND | 10.5 | 12.7 |
| 18:1n7 | ND | 3.5 | 3.0 | ND | 2.7 | 3.4 |
| 20:1n9 | ND | 0.6 | 0.5 | ND | 0.6 | 0.6 |
| 22:1n11+13 | ND | [3]0.1 | TR[4] | ND | 0.1 | 0.1 |
| 22:1n9 | ND | 0.1 | TR | ND | 0.3 | 0.1 |
| 18:2n6 | ND | 0.5 | 0.7 | ND | 0.8 | 0.8 |
| 20:4n6 | ND | 3.1 | 4.3 | ND | 6.3 | 3.7 |
| 22:4n6 | ND | 0.9 | 1.0 | ND | 1.7 | 0.9 |
| 20:5n3 | ND | 2.0 | 2.9 | ND | 2.9 | 2.8 |
| 22:5n6 | ND | 1.1 | 1.7 | ND | 2.3 | 1.5 |
| 22:5n3 | ND | 2.2 | 3.0 | ND | 3.3 | 3.1 |
| 22:6n3 | ND | 11.9 | 28.9 | ND | 16.4 | 17.8 |

[1]Measurements are for whole fish unless otherwise indicated.
[2]ND indicates not determined.
[3]Numbers between 0.06% and 0.1% rounded to 0.1%.
[4]TR (trace) indicates a percent < 0.05.

**Table 5—Bass, Black Sea**

| | Raw | | Cooked |
|---|---|---|---|
| Date: | 4-83 | 7-83 | 7-83 |
| Mean cm | 26.1 | 43.5 | — |
| Mean kg | 0.25 | 0.96 | — |
| **Proximate Compositions** | | | |
| Protein | 17.8 | 18.2 | 26.1 |
| Moisture | 81.3 | 81.2 | 73.0 |
| Fat | 0.8 | 0.6 | 1.0 |
| Ash | 1.7 | 1.1 | 1.2 |
| **Fatty Acids** | | | |
| 14:0 | 1.2 | 0.9 | 1.0 |
| 16:0 | 18.9 | 21.2 | 20.4 |
| 18:0 | 8.4 | 8.3 | 7.8 |
| 16:1n7 | 3.9 | 3.0 | 3.2 |
| 18:1n9 | 9.8 | 14.8 | 15.0 |
| 18:1n7 | 3.8 | 2.4 | 2.5 |
| 20:1n9 | 1.1 | 0.5 | 0.6 |
| 22:1n11+13 | TR | TR | TR |
| 22:1n9 | 0.9 | TR | 0.1 |
| 18:2n6 | 0.9 | 0.7 | 0.8 |
| 20:4n6 | 4.1 | 5.6 | 5.4 |
| 22:4n6 | 0.8 | 1.8 | 2.0 |
| 20:5n3 | 7.0 | 2.8 | 2.9 |
| 22:5n6 | 1.5 | 2.5 | 2.3 |
| 22:5n3 | 2.2 | 2.6 | 3.0 |
| 22:6n3 | 24.9 | 21.9 | 20.9 |

**Table 6—Bluefish**

| | Raw | | | |
|---|---|---|---|---|
| Date: | 4-84 | 8-84 | 6-85 | 9-85 |
| Mean cm | ND | 33.6 | 42.1 | 41.2 |
| Mean kg | 0.93 | 0.51 | 0.96 | 1.13 |
| **Proximate Compositions** | | | | |
| Protein | 19.2 | 18.5 | 22.2 | 20.4 |
| Moisture | 79.2 | 80.8 | 79.1 | 72.4 |
| Fat | 0.6 | 0.8 | 1.0 | 7.2 |
| Ash | 1.1 | 0.9 | 1.1 | 1.1 |
| **Fatty Acids** | | | | |
| 14:0 | 1.7 | ND | 1.0 | 3.4 |
| 16:0 | 18.3 | ND | 21.1 | 24.3 |
| 18:0 | 8.0 | ND | 9.1 | 7.1 |
| 16:1n7 | 2.5 | ND | 1.5 | 9.2 |
| 18:1n9 | 9.6 | ND | 10.5 | 18.0 |
| 18:1n7 | 3.0 | ND | 2.9 | 4.3 |
| 20:1n9 | 1.2 | ND | 1.7 | 1.7 |
| 22:1n11+13 | 0.2 | ND | 1.0 | 0.2 |
| 22:1n9 | 0.2 | ND | 0.4 | TR |
| 18:2n6 | 0.6 | ND | 0.6 | 2.2 |
| 20:4n6 | 3.2 | ND | 2.1 | 1.4 |
| 22:4n6 | 0.6 | ND | TR | 0.4 |
| 20:5n3 | 5.2 | ND | 4.9 | 3.9 |
| 22:5n6 | 1.5 | ND | 0.8 | 0.4 |
| 22:5n3 | 3.4 | ND | 2.4 | 2.4 |
| 22:6n3 | 25.7 | ND | 33.6 | 4.1 |
| | Cooked | | | |
| Date: | 4-84 | 8-84 | 6-85 | 9-85 |
| Mean cm | — | — | — | — |
| Mean kg | — | — | — | — |
| **Proximate Compositions** | | | | |
| Protein | 25.5 | 26.1 | 28.6 | 23.6 |
| Moisture | 72.7 | 73.3 | 73.7 | 65.5 |
| Fat | 1.5 | 0.6 | 1.4 | 10.6 |
| Ash | 1.2 | 1.0 | 1.2 | 0.9 |
| **Fatty Acids** | | | | |
| 14:0 | 2.7 | ND | 1.3 | 3.6 |
| 16:0 | 16.9 | ND | 21.6 | 24.7 |
| 18:0 | 6.7 | ND | 8.9 | 8.3 |
| 16:1n7 | 3.5 | ND | 2.1 | 9.3 |
| 18:1n9 | 9.8 | ND | 10.6 | 18.0 |
| 18:1n7 | 3.1 | ND | 3.1 | 4.3 |
| 20:1n9 | 5.1 | ND | 1.2 | 1.7 |
| 2:1n11+13 | 0.2 | ND | 0.3 | 0.3 |
| 22:1n9 | TR | ND | 0.3 | TR |
| 18:2n6 | 0.9 | ND | 0.6 | 2.1 |
| 20:4n6 | 2.8 | ND | 1.9 | 1.3 |
| 22:4n6 | 0.5 | ND | 0.2 | 0.4 |
| 20:5n3 | 4.9 | ND | 5.6 | 3.6 |
| 22:5n6 | 1.3 | ND | 0.7 | 0.4 |
| 22:5n3 | 3.5 | ND | 2.4 | 2.3 |
| 22:6n3 | 18.1 | ND | 28.5 | 3.4 |

**Table 7—Catfish, Channel[1]**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 7-85 | 9-85 | 11-85 | 7-85 | 9-85 | 11-85 |
| Mean cm | 33.6 | 36.3 | 38.9 | — | — | — |
| Mean kg | 0.57 | 0.47 | 0.62 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 16.1 | 16.2 | 16.2 | 19.2 | 19.0 | 19.8 |
| Moisture | 80.3 | 83.7 | 82.4 | 76.5 | 81.2 | 78.1 |
| Fat | 3.6 | 1.3 | 2.2 | 2.9 | 0.8 | 2.2 |
| Ash | 1.0 | 1.0 | 0.9 | 1.0 | 1.0 | 1.0 |
| **Fatty Acids** | | | | | | |
| 14:0 | 2.4 | 1.4 | 2.2 | 2.6 | ND | 3.4 |
| 16:0 | 17.9 | 18.8 | 18.6 | 20.4 | ND | 20.8 |
| 18:0 | 4.4 | 6.0 | 5.2 | 5.6 | ND | 5.7 |
| 16:1n7 | 4.9 | 7.8 | 6.0 | 6.1 | ND | 5.6 |
| 18:1n9 | 24.2 | 16.2 | 27.0 | 25.7 | ND | 20.5 |
| 18:1n7 | 4.6 | 6.0 | 4.3 | 4.9 | ND | 3.9 |
| 20:1n9 | 1.5 | 0.8 | 1.8 | 1.6 | ND | 1.6 |
| 2:1n11+13 | TR | TR | TR | TR | ND | TR |
| 22:1n9 | TR | TR | TR | TR | ND | TR |
| 18:2n6 | 2.6 | 3.1 | 2.2 | 4.3 | ND | 1.7 |
| 20:4n6 | 2.5 | 5.6 | 3.5 | 2.7 | ND | 2.9 |
| 22:4n6 | 0.6 | 0.7 | TR | TR | ND | 0.4 |
| 20:5n3 | 3.5 | 3.5 | 4.1 | 4.5 | ND | 5.1 |
| 22:5n6 | 1.2 | 2.3 | 1.3 | 0.8 | ND | 1.3 |
| 22:5n3 | 2.5 | 2.0 | 3.0 | 2.3 | ND | 2.7 |
| 22:6n3 | 3.8 | 5.4 | 5.3 | 6.9 | ND | 7.9 |

[1]Fish were wild, not commercially pond-raised.

**Table 8—Croaker, Atlantic**

| | Raw | | | | |
|---|---|---|---|---|---|
| Date: | 10-82 | 5-83 | 7-83 | 8-84 | 5-85 |
| Mean cm | ND | 25.6 | 23.5 | 23.4 | 24.2 |
| Mean kg | ND | 0.19 | 0.18 | 0.15 | 0.16 |
| **Proximate Compositions** | | | | | |
| Protein | ND | 14.8 | 18.3 | 17.4 | ND |
| Moisture | ND | 83.2 | 79.5 | 77.6 | ND |
| Fat | ND | 0.8 | 1.7 | 4.0 | ND |
| Ash | ND | 0.9 | 1.2 | 0.9 | ND |
| **Fatty Acids** | | | | | |
| 14:0 | 1.2 | ND | 1.3 | ND | 1.2 |
| 16:0 | 23.0 | ND | 23.6 | ND | 28.5 |
| 18:0 | 7.2 | ND | 6.7 | ND | 6.9 |
| 16:1n7 | 10.1 | ND | 9.9 | ND | 13.1 |
| 18:1n9 | 12.6 | ND | 9.9 | ND | 13.5 |
| 18:1n7 | 2.2 | ND | 2.5 | ND | 2.6 |
| 20:1n9 | 0.8 | ND | 0.8 | ND | 0.8 |
| 22:1n11+13 | TR | ND | 0.5 | ND | 1.1 |
| 22:1n9 | 0.8 | ND | 0.2 | ND | TR |
| 18:2n6 | 2.0 | ND | 0.6 | ND | 0.5 |
| 20:4n6 | 3.7 | ND | 3.4 | ND | 2.6 |
| 22:4n6 | 0.8 | ND | 1.2 | ND | TR |
| 20:5n3 | 4.4 | ND | 5.1 | ND | 4.0 |
| 22:5n6 | 0.6 | ND | 1.0 | ND | TR |
| 22:5n3 | 1.9 | ND | 2.5 | ND | 2.3 |
| 22:6n3 | 4.5 | ND | 7.5 | ND | 7.1 |

| | Cooked | | |
|---|---|---|---|
| Date: | 5-83 | 7-83 | 5-85 |
| Mean cm | — | — | — |
| Mean kg | — | — | — |
| **Proximate Compositions** | | | |
| Protein | 24.4 | 24.1 | 23.7 |
| Moisture | 75.0 | 73.8 | 73.7 |
| Fat | 1.2 | 1.8 | 3.4 |
| Ash | 1.1 | 1.2 | 1.0 |
| **Fatty Acids** | | | |
| 14:0 | ND | 1.1 | ND |
| 16:0 | ND | 23.5 | ND |
| 18:0 | ND | 7.6 | ND |
| 16:1n7 | ND | 8.0 | ND |
| 18:1n9 | ND | 10.0 | ND |
| 18:1n7 | ND | 2.8 | ND |
| 20:1n9 | ND | 0.8 | ND |
| 22:1n11+13 | ND | 0.5 | ND |
| 22:1n9 | ND | 0.2 | ND |
| 18:2n6 | ND | 0.6 | ND |
| 20:4n6 | ND | 4.1 | ND |
| 22:4n6 | ND | 1.4 | ND |
| 20:5n3 | ND | 5.3 | ND |
| 22:5n6 | ND | 1.3 | ND |
| 22:5n3 | ND | 3.0 | ND |
| 22:6n3 | ND | 10.2 | ND |

**Table 9—Dolphin**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 6-83 | 5-85 | 9-85 | 6-83 | 5-85 | 9-85 |
| Mean cm | 98.0 | 51.8 | 55.5 | — | — | — |
| Mean kg | 5.55 | 1.39 | 1.56 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 18.0 | 22.1 | 20.6 | 26.0 | 28.2 | 27.3 |
| Moisture | 80.7 | 79.6 | 78.7 | 73.4 | 72.3 | 71.8 |
| Fat | 0.6 | 0.8 | 1.1 | 1.0 | 1.3 | 1.3 |
| Ash | 1.1 | 1.2 | 1.2 | 1.1 | 1.4 | 1.3 |
| **Fatty Acids** | | | | | | |
| 14:0 | 0.6 | 0.8 | 0.9 | 0.6 | 0.8 | 0.9 |
| 16:0 | 15.5 | 18.9 | 18.7 | 13.8 | 17.0 | 18.5 |
| 18:0 | 12.7 | 12.3 | 12.5 | 12.7 | 13.4 | 13.0 |
| 16:1n7 | 1.1 | 2.1 | 1.5 | 1.0 | 1.0 | 1.3 |
| 18:1n9 | 7.8 | 8.6 | 9.6 | 6.8 | 8.2 | 8.9 |
| 18:1n7 | 2.3 | 2.1 | 2.1 | 2.1 | 2.1 | 2.2 |
| 20:1n9 | 0.5 | 0.2 | 0.3 | 0.1 | TR | 0.2 |
| 22:1n11+13 | TR | TR | TR | 0.1 | TR | TR |
| 22:1n9 | TR | TR | TR | TR | TR | TR |
| 18:2n6 | 0.9 | 0.7 | 0.8 | 0.9 | 0.8 | 0.9 |
| 20:4n6 | 4.5 | 3.5 | 3.1 | 4.3 | 3.2 | 3.7 |
| 22:4n6 | 0.2 | TR | TR | 0.4 | TR | 0.2 |
| 20:5n3 | 3.0 | 4.1 | 3.3 | 3.0 | 3.7 | 3.2 |
| 22:5n6 | 2.7 | 2.2 | 2.5 | 2.9 | 2.4 | 2.5 |
| 22:5n3 | 1.4 | 1.5 | 1.4 | 1.7 | 1.9 | 1.4 |
| 22:6n3 | 28.6 | 36.5 | 28.3 | 30.9 | 36.2 | 28.6 |

**Table 10—Drum, Red**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 10-83 | 1-84 | 7-84 | 10-83 | 1-84 | 7-84 |
| Mean cm | 41.5 | 60.8 | 68.9 | — | — | — |
| Mean kg | 0.88 | 2.51 | 3.57 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 18.9 | 20.0 | ND | 24.6 | 24.6 | ND |
| Moisture | 78.9 | 78.7 | ND | 72.8 | 74.3 | ND |
| Fat | 1.1 | 0.6 | ND | 1.7 | 1.0 | ND |
| Ash | 1.0 | 1.1 | ND | 1.1 | 1.1 | ND |
| **Fatty Acids** | | | | | | |
| 14:0 | 1.2 | ND | 0.5 | 1.4 | ND | 0.4 |
| 16:0 | 21.8 | ND | 19.6 | 22.2 | ND | 15.6 |
| 18:0 | 6.3 | ND | 7.9 | 7.1 | ND | 10.9 |
| 16:1n7 | 6.7 | ND | 1.5 | 7.0 | ND | 1.4 |
| 18:1n9 | 14.7 | ND | 7.9 | 13.1 | ND | 8.3 |
| 18:1n7 | 2.9 | ND | 2.4 | 3.0 | ND | 3.0 |
| 20:1n9 | 0.8 | ND | 0.4 | 0.8 | ND | 0.6 |
| 22:1n11+13 | 0.2 | ND | TR | TR | ND | TR |
| 22:1n9 | 0.1 | ND | 0.2 | 0.1 | ND | TR |
| 18:2n6 | 1.4 | ND | 0.8 | 1.7 | ND | 0.9 |
| 20:4n6 | 3.0 | ND | 6.3 | 2.9 | ND | 6.9 |
| 22:4n6 | 0.7 | ND | 1.9 | 0.6 | ND | 2.0 |
| 20:5n3 | 4.0 | ND | 3.7 | 4.3 | ND | 3.6 |
| 22:5n6 | 1.1 | ND | 3.4 | 1.5 | ND | 2.9 |
| 22:5n3 | 2.4 | ND | 4.1 | 2.3 | ND | 4.8 |
| 22:6n3 | 13.2 | ND | 23.2 | 13.9 | ND | 21.1 |

**Table 11—Flounder, Southern**

| | Raw | | Cooked | |
|---|---|---|---|---|
| Date: | 6-83 | 7-83 | 6-83 | 7-83 |
| Mean cm | 35.0 | 47.8 | — | — |
| Mean kg | 0.56 | 1.45 | — | — |
| **Proximate Compositions** | | | | |
| Protein | 16.3 | 18.5 | 18.8 | 22.1 |
| Moisture | 82.8 | 81.9 | 79.9 | 76.9 |
| Fat | 0.8 | 0.5 | 1.0 | 0.6 |
| Ash | 0.8 | 1.0 | 0.8 | 1.1 |
| **Fatty Acids** | | | | |
| 14:0 | 2.4 | 1.3 | 2.3 | 1.3 |
| 16:0 | 20.1 | 23.2 | 19.9 | 22.1 |
| 18:0 | 5.9 | 5.8 | 5.4 | 6.7 |
| 16:1n7 | 5.5 | 3.7 | 4.5 | 3.7 |
| 18:1n9 | 9.6 | 8.6 | 7.8 | 9.3 |
| 18:1n7 | 3.3 | 2.3 | 3.0 | 2.3 |
| 20:1n9 | 0.8 | 0.6 | 0.6 | 0.7 |
| 22:1n11+13 | 0.3 | TR | 0.1 | TR |
| 22:1n9 | TR | TR | TR | TR |
| 18:2n6 | 2.4 | 1.2 | 2.1 | 1.1 |
| 20:4n6 | 2.5 | 3.4 | 3.0 | 3.4 |
| 22:4n6 | 0.2 | 0.8 | 0.6 | 0.8 |
| 20:5n3 | 4.3 | 2.9 | 4.6 | 3.1 |
| 22:5n6 | 1.2 | 1.6 | 1.5 | 1.4 |
| 22:5n3 | 3.1 | 2.9 | 3.1 | 3.1 |
| 22:6n3 | 17.8 | 25.6 | 20.2 | 23.0 |

**Table 12—Goosefish (Monkfish)**

| | Raw | | | |
|---|---|---|---|---|
| Date: | 1-84 | 2-84 | 9-84 | 6-85 |
| Mean cm | * | * | * | * |
| Mean kg | * | * | * | * |
| **Proximate Compositions** | | | | |
| Protein | 15.7 | 15.2 | 16.3 | 16.6 |
| Moisture | 83.3 | 82.8 | 83.5 | 85.6 |
| Fat | 0.6 | 0.7 | 0.4 | 0.5 |
| Ash | 0.9 | 1.0 | 0.9 | 0.9 |
| **Fatty Acids** | | | | |
| 14:0 | 0.9 | ND | ND | 0.9 |
| 16:0 | 14.4 | ND | ND | 21.7 |
| 18:0 | 6.8 | ND | ND | 7.8 |
| 16:1n7 | 2.5 | ND | ND | 2.8 |
| 18:1n9 | 16.9 | ND | ND | 8.8 |
| 18:1n7 | 3.2 | ND | ND | 2.9 |
| 20:1n9 | 0.4 | ND | ND | 1.4 |
| 22:1n11+13 | 0.4 | ND | ND | TR |
| 22:1n9 | 0.9 | ND | ND | 0.2 |
| 18:2n6 | 1.3 | ND | ND | 1.2 |
| 20:4n6 | 2.7 | ND | ND | 5.5 |
| 22:4n6 | 0.4 | ND | ND | 0.6 |
| 20:5n3 | 5.1 | ND | ND | 8.8 |
| 22:5n6 | 0.9 | ND | ND | 2.0 |
| 22:5n3 | 2.1 | ND | ND | 1.6 |
| 22:6n3 | 23.0 | ND | ND | 25.8 |

*Steaks, no data available on length and weight for any samples.

| | Cooked | | |
|---|---|---|---|
| Date: | 2-84 | 9-84 | 6-85 |
| Mean cm | — | — | — |
| Mean kg | — | — | — |
| **Proximate Compositions** | | | |
| Protein | 24.7 | 23.2 | 25.8 |
| Moisture | 74.0 | 76.9 | 76.7 |
| Fat | 1.0 | 0.5 | 1.0 |
| Ash | 1.0 | 0.8 | 1.0 |
| **Fatty Acids** | | | |
| 14:0 | ND | ND | 0.7 |
| 16:0 | ND | ND | 18.8 |
| 18:0 | ND | ND | 8.4 |
| 16:1n7 | ND | ND | 2.5 |
| 18:1n9 | ND | ND | 9.8 |
| 18:1n7 | ND | ND | 3.4 |
| 20:1n9 | ND | ND | 2.0 |
| 22:1n11+13 | ND | ND | TR |
| 22:1n9 | ND | ND | TR |
| 18:2n6 | ND | ND | 1.4 |
| 20:4n6 | ND | ND | 5.2 |
| 22:4n6 | ND | ND | 0.5 |
| 20:5n3 | ND | ND | 7.9 |
| 22:5n6 | ND | ND | 1.8 |
| 22:5n3 | ND | ND | 1.7 |
| 22:6n3 | ND | ND | 25.5 |

**Table 13—Grouper, Gag**

| | Raw | | | Cooked | |
|---|---|---|---|---|---|
| Date: | 3-83 | 6-83 | 9-85 | 6-83 | 9-85 |
| Mean cm | 75.2 | 75.0 | 61.0 | — | — |
| Mean kg | 5.84 | 5.36 (gutted) | 2.90 | — | — |
| **Proximate Compositions** | | | | | |
| Protein | 20.2 | 21.6 | 21.1 | 26.5 | 27.9 |
| Moisture | 78.2 | 74.4 | 77.7 | 71.4 | 70.4 |
| Fat | 1.1 | 3.6 | 2.0 | 2.2 | 1.9 |
| Ash | 1.5 | 1.2 | 1.2 | 1.1 | 1.2 |
| **Fatty Acids** | | | | | |
| 14:0 | 2.8 | 3.2 | 3.0 | 2.4 | 3.0 |
| 16:0 | 26.5 | 24.5 | 24.6 | 23.0 | 24.0 |
| 18:0 | 8.4 | 7.0 | 9.1 | 8.0 | 8.8 |
| 16:1n7 | 8.3 | 8.6 | 6.2 | 6.9 | 6.1 |
| 18:1n9 | 14.5 | 18.4 | 13.5 | 17.0 | 13.1 |
| 18:1n7 | 2.7 | 3.4 | 3.0 | 3.1 | 2.8 |
| 20:1n9 | 1.1 | 1.2 | 0.6 | 1.2 | 0.6 |
| 22:1n11+13 | TR | 0.3 | TR | 0.2 | TR |
| 22:1n9 | 0.1 | 0.2 | TR | 0.1 | TR |
| 18:2n6 | 0.6 | 0.8 | 1.0 | 0.9 | 1.0 |
| 20:4n6 | 3.5 | 2.3 | 2.8 | 2.8 | 3.3 |
| 22:4n6 | 0.8 | 0.9 | 0.4 | 1.0 | 0.3 |
| 20:5n3 | 2.9 | 3.0 | 4.3 | 3.0 | 4.7 |
| 22:5n6 | 1.4 | 1.0 | 1.4 | 1.1 | 1.6 |
| 22:5n3 | 1.8 | 2.4 | 1.4 | 2.5 | 1.3 |
| 22:6n3 | 15.7 | 11.0 | 19.5 | 12.6 | 22.1 |

**Table 14—Grouper, Scamp**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 7-83 | 9-84 | 11-84 | 7-83 | 9-84 | 11-84 |
| Mean cm | 58.1 | 62.7 | 60.0 | — | — | — |
| Mean kg | 2.01 | 3.69 (gutted) | 2.94 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 19.2 | 20.2 | 19.7 | 22.7 | 27.5 | 23.7 |
| Moisture | 79.3 | 78.8 | 79.5 | 73.5 | 71.6 | 75.8 |
| Fat | 1.3 | 1.8 | 1.7 | 3.5 | 2.6 | 1.3 |
| Ash | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 | 1.3 |
| **Fatty Acids** | | | | | | |
| 14:0 | ND | ND | 2.0 | 3.1 | ND | 1.8 |
| 16:0 | ND | ND | 23.9 | 26.4 | ND | 25.7 |
| 18:0 | ND | ND | 8.2 | 6.7 | ND | 8.9 |
| 16:1n7 | ND | ND | 5.2 | 9.2 | ND | 4.4 |
| 18:1n9 | ND | ND | 12.1 | 16.1 | ND | 11.0 |
| 18:1n7 | ND | ND | 2.4 | 2.4 | ND | 2.1 |
| 20:1n9 | ND | ND | 1.0 | 0.9 | ND | 0.7 |
| 22:1n11+13 | ND | ND | 0.4 | 0.2 | ND | 0.3 |
| 22:1n9 | ND | ND | 0.2 | TR | ND | 0.2 |
| 18:2n6 | ND | ND | 0.8 | 0.8 | ND | 0.8 |
| 20:4n6 | ND | ND | 2.4 | 1.7 | ND | 2.7 |
| 22:4n6 | ND | ND | 0.6 | 0.3 | ND | 0.6 |
| 20:5n3 | ND | ND | 2.5 | 2.5 | ND | 2.3 |
| 22:5n6 | ND | ND | 2.0 | 1.3 | ND | 2.2 |
| 22:5n3 | ND | ND | 2.3 | 1.4 | ND | 2.0 |
| 22:6n3 | ND | ND | 20.9 | 17.4 | ND | 22.3 |

**Table 15—Grouper, Snowy**

| | Raw | | Cooked | |
|---|---|---|---|---|
| Date: | 5-83 | 4-84 | 5-83 | 4-84 |
| Mean cm | 74.5 | 68.7 | — | — |
| Mean kg | 5.47 (gutted) | 4.69 (gutted) | — | — |
| **Proximate Compositions** | | | | |
| Protein | 20.5 | 19.4 | 24.3 | 25.5 |
| Moisture | 78.6 | 79.0 | 72.6 | 73.4 |
| Fat | 0.9 | 0.6 | 1.4 | 0.5 |
| Ash | 1.2 | 1.2 | 1.2 | 1.3 |
| **Fatty Acids** | | | | |
| 14:0 | 1.5 | ND | 1.1 | ND |
| 16:0 | 17.7 | ND | 18.7 | ND |
| 18:0 | 6.4 | ND | 6.5 | ND |
| 16:1n7 | 2.7 | ND | 2.1 | ND |
| 18:1n9 | 13.6 | ND | 12.0 | ND |
| 18:1n7 | 2.6 | ND | 2.4 | ND |
| 20:1n9 | 3.4 | ND | 2.8 | ND |
| 22:1n11+13 | 2.1 | ND | 1.7 | ND |
| 22:1n9 | 0.8 | ND | 0.6 | ND |
| 18:2n6 | 0.8 | ND | 0.8 | ND |
| 20:4n6 | 4.0 | ND | 4.9 | ND |
| 22:4n6 | 0.8 | ND | 0.9 | ND |
| 20:5n3 | 3.2 | ND | 3.7 | ND |
| 22:5n6 | 1.9 | ND | 2.2 | ND |
| 22:5n3 | 2.7 | ND | 2.7 | ND |
| 22:6n3 | 22.4 | ND | 25.0 | ND |

**Table 16—Grouper, Yellowedge**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 5-83 | 8-83 | 9-84 | 5-83 | 8-83 | 9-84 |
| Mean cm | 72.6 | 76.5 | 67.2 | — | — | — |
| Mean kg | 4.42 (gutted) | 4.99 | 4.13 (gutted) | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 19.6 | 19.0 | 18.4 | 24.8 | 28.9 | 24.6 |
| Moisture | 78.5 | 79.8 | 80.4 | 72.4 | 69.1 | 74.9 |
| Fat | 1.6 | 1.0 | 0.5 | 1.4 | 1.5 | 0.7 |
| Ash | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 | 1.1 |
| **Fatty Acids** | | | | | | |
| 14:0 | 2.1 | 1.6 | ND | 0.9 | 2.2 | ND |
| 16:0 | 17.9 | 17.1 | ND | 20.6 | 15.4 | ND |
| 18:0 | 6.1 | 5.8 | ND | 7.2 | 5.5 | ND |
| 16:1n7 | 4.6 | 2.0 | ND | 1.9 | 2.8 | ND |
| 18:1n9 | 7.6 | 11.2 | ND | 10.5 | 12.7 | ND |
| 18:1n7 | 3.5 | 2.1 | ND | 2.1 | 2.4 | ND |
| 20:1n9 | 3.4 | 3.2 | ND | 2.1 | 5.3 | ND |
| 22:1n11+13 | 2.2 | 3.0 | ND | 1.1 | 4.3 | ND |
| 22:1n9 | 0.6 | 0.5 | ND | 0.3 | 0.7 | ND |
| 18:2n6 | 0.9 | 1.0 | ND | 0.7 | 1.1 | ND |
| 20:4n6 | 2.4 | 4.3 | ND | 4.8 | 3.4 | ND |
| 22:4n6 | 0.8 | 1.0 | ND | 0.9 | 0.9 | ND |
| 20:5n3 | 3.4 | 3.2 | ND | 3.3 | 3.3 | ND |
| 22:5n6 | 1.1 | 2.5 | ND | 2.2 | 1.9 | ND |
| 22:5n3 | 3.2 | 2.5 | ND | 2.5 | 2.5 | ND |
| 22:6n3 | 17.4 | 23.1 | ND | 27.0 | 18.0 | ND |

**Table 17—Grunt, White**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 5-85 | 6-85 | 8-85 | 5-85 | 6-85 | 8-85 |
| Mean cm | 31.6 | 34.7 | 33.3 | — | — | — |
| Mean kg | 0.71 | 0.89 | 0.83 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 21.6 | 20.4 | 19.4 | 25.2 | 26.0 | 23.7 |
| Moisture | 80.2 | 82.0 | 80.5 | 75.7 | 77.1 | 75.4 |
| Fat | 1.0 | 0.6 | 0.6 | 1.5 | 0.8 | 0.8 |
| Ash | 1.1 | 1.0 | 1.1 | 1.1 | 1.2 | 1.2 |
| **Fatty Acids** | | | | | | |
| 14:0 | 2.2 | 0.4 | 0.7 | 1.6 | 0.5 | 0.8 |
| 16:0 | 19.0 | 17.8 | 17.9 | 19.1 | 17.9 | 17.2 |
| 18:0 | 9.1 | 9.7 | 9.6 | 8.6 | 9.4 | 9.8 |
| 16:1n7 | 4.4 | 1.5 | 2.1 | 3.6 | 1.7 | 2.5 |
| 18:1n9 | 13.0 | 10.2 | 12.4 | 13.5 | 10.6 | 12.2 |
| 18:1n7 | 4.0 | 2.1 | 2.6 | 3.5 | 2.0 | 3.0 |
| 20:1n9 | 0.9 | 0.3 | 0.4 | 0.6 | 0.2 | 0.4 |
| 22:1n11+13 | 0.6 | TR | TR | 0.4 | 0.1 | 0.2 |
| 22:1n9 | TR | 0.3 | TR | TR | 0.3 | TR |
| 18:2n6 | 0.9 | 0.7 | 0.7 | 0.9 | 0.9 | 0.7 |
| 20:4n6 | 6.2 | 11.0 | 12.0 | 7.3 | 12.7 | 11.8 |
| 22:4n6 | 1.7 | 2.1 | 2.4 | 1.8 | 2.1 | 2.2 |
| 20:5n3 | 6.5 | 5.6 | 5.6 | 6.5 | 6.8 | 6.3 |
| 22:5n6 | 1.2 | 2.4 | 2.3 | 1.5 | 2.4 | 2.1 |
| 22:5n3 | 2.8 | 2.6 | 2.4 | 2.6 | 2.5 | 2.4 |
| 22:6n3 | 10.6 | 23.1 | 20.2 | 12.1 | 18.9 | 19.5 |

**Table 18—Hind, Speckled**

| | Raw | | | |
|---|---|---|---|---|
| Date: | 11-83 | 1-84 | 4-85 | 6-85 |
| Mean cm | 45.8 | 48.4 | 63.9 | 33.0 |
| Mean kg | 1.75 (gutted) | 2.30 | 5.35 | 0.67 |
| **Proximate Compositions** | | | | |
| Protein | 19.6 | 19.2 | 22.1 | 21.7 |
| Moisture | 74.3 | 77.3 | 72.1 | 80.0 |
| Fat | 5.5 | 3.3 | 7.4 | 1.2 |
| Ash | 1.1 | 1.1 | 1.2 | 1.1 |
| **Fatty Acids** | | | | |
| 14:0 | 3.4 | ND | 3.8 | 2.0 |
| 16:0 | 29.1 | ND | 32.6 | 26.5 |
| 18:0 | 7.3 | ND | 7.8 | 9.8 |
| 16:1n7 | 10.5 | ND | 11.0 | 5.6 |
| 18:1n9 | 16.4 | ND | 18.5 | 11.3 |
| 18:1n7 | 2.4 | ND | 2.8 | 2.6 |
| 20:1n9 | 1.3 | ND | 1.8 | 1.1 |
| 22:1n11+13 | TR | ND | TR | TR |
| 22:1n9 | 0.2 | ND | 0.4 | 0.2 |
| 18:2n6 | 0.7 | ND | 0.5 | 0.7 |
| 20:4n6 | 1.2 | ND | 0.9 | 3.2 |
| 22:4n6 | 0.4 | ND | 0.3 | 0.9 |
| 20:5n3 | 2.5 | ND | 1.4 | 4.2 |
| 22:5n6 | 1.0 | ND | 0.5 | 1.2 |
| 22:5n3 | 1.8 | ND | 1.2 | 2.6 |
| 22:6n3 | 11.8 | ND | 6.4 | 19.0 |

| | Cooked | | | |
|---|---|---|---|---|
| Date: | 11-83 | 1-84 | 4-85 | 6-85 |
| Mean cm | — | — | — | — |
| Mean kg | — | — | — | — |
| **Proximate Compositions** | | | | |
| Protein | 25.7 | 25.3 | 25.7 | 27.9 |
| Moisture | 71.2 | 66.7 | 66.7 | 72.3 |
| Fat | 2.2 | 6.0 | 9.0 | 1.6 |
| Ash | 1.2 | 1.1 | 1.1 | 1.2 |
| **Fatty Acids** | | | | |
| 14:0 | 2.8 | ND | 3.6 | 1.7 |
| 16:0 | 25.5 | ND | 29.0 | 25.0 |
| 18:0 | 8.0 | ND | 6.5 | 9.7 |
| 16:1n7 | 8.0 | ND | 10.3 | 4.8 |
| 18:1n9 | 14.5 | ND | 15.8 | 10.4 |
| 18:1n7 | 2.5 | ND | 2.3 | 2.5 |
| 20:1n9 | 1.5 | ND | 1.5 | 0.9 |
| 22:1n11+13 | 0.1 | ND | 0.3 | TR |
| 22:1n9 | 0.3 | ND | 0.6 | 0.2 |
| 18:2n6 | 0.7 | ND | 0.5 | 0.7 |
| 20:4n6 | 2.8 | ND | 1.3 | 3.8 |
| 22:4n6 | 0.8 | ND | 0.6 | 1.0 |
| 20:5n3 | 2.7 | ND | 2.2 | 4.5 |
| 22:5n6 | 1.5 | ND | 0.8 | 1.4 |
| 22:5n3 | 1.8 | ND | 1.5 | 2.7 |
| 22:6n3 | 15.1 | ND | 8.8 | 21.6 |

**Table 19—Jack, Crevalle**

| | Raw | | | |
|---|---|---|---|---|
| Date: | 3-83 | 7-85 | 8-85 | 9-85 |
| Mean cm | ND | 54.5 | 46.2 | 39.0 |
| Mean kg | 13.15 | 3.33 | 1.93 | 1.40 |
| **Proximate Compositions** | | | | |
| Protein | 22.4 | 20.8 | 21.2 | 20.1 |
| Moisture | 73.5 | 77.8 | 77.1 | 68.6 |
| Fat | 1.8 | 1.0 | 1.5 | 11.3 |
| Ash | 1.4 | 1.4 | 1.4 | 1.1 |
| **Fatty Acids** | | | | |
| 14:0 | 2.2 | 0.6 | 1.7 | 2.0 |
| 16:0 | 21.4 | 19.6 | 21.3 | 27.2 |
| 18:0 | 9.6 | 11.5 | 13.8 | 8.5 |
| 16:1n7 | 3.6 | 1.8 | 3.0 | 7.8 |
| 18:1n9 | 12.8 | 8.9 | 12.3 | 20.9 |
| 18:1n7 | 2.9 | 3.0 | 3.6 | 4.1 |
| 20:1n9 | 0.8 | 0.4 | 0.6 | 0.6 |
| 22:1n11+13 | 0.5 | 0.1 | TR | TR |
| 22:1n9 | 0.2 | TR | TR | 0.1 |
| 18:2n6 | 0.9 | 0.6 | 0.7 | 3.0 |
| 20:4n6 | 4.0 | 5.7 | 4.3 | 2.1 |
| 22:4n6 | 1.5 | 1.1 | 0.8 | 0.5 |
| 20:5n3 | 4.1 | 4.0 | 4.4 | 2.9 |
| 22:5n6 | 1.7 | 2.4 | 1.6 | 0.5 |
| 22:5n3 | 3.0 | 2.6 | 2.5 | 1.4 |
| 22:6n3 | 14.6 | 25.8 | 20.9 | 3.3 |

| | Cooked | | |
|---|---|---|---|
| Date: | 7-85 | 8-85 | 9-85 |
| Mean cm | — | — | — |
| Mean kg | — | — | — |
| **Proximate Compositions** | | | |
| Protein | 26.3 | 26.4 | 24.6 |
| Moisture | 72.2 | 71.4 | 63.3 |
| Fat | 1.1 | 1.8 | 11.8 |
| Ash | 1.5 | 1.5 | 1.1 |
| **Fatty Acids** | | | |
| 14:0 | 0.5 | 1.6 | 1.9 |
| 16:0 | 20.2 | 20.8 | 27.7 |
| 18:0 | 16.1 | 16.7 | 9.1 |
| 16:1n7 | 1.9 | 2.6 | 7.4 |
| 18:1n9 | 10.9 | 12.1 | 20.8 |
| 18:1n7 | 3.8 | 4.2 | 4.1 |
| 20:1n9 | 0.4 | 0.7 | 0.6 |
| 22:1n11+13 | TR | TR | 0.1 |
| 22:1n9 | TR | TR | 0.1 |
| 18:2n6 | 0.5 | 0.8 | 2.8 |
| 20:4n6 | 5.6 | 4.0 | 2.2 |
| 22:4n6 | 0.8 | 0.8 | 0.5 |
| 20:5n3 | 3.6 | 3.6 | 2.9 |
| 22:5n6 | 1.8 | 1.5 | 0.6 |
| 22:5n3 | 1.9 | 2.1 | 1.4 |
| 22:6n3 | 21.3 | 18.5 | 3.7 |

**Table 20—Kingfish, Southern**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 9-84 | 10-84 | 11-84 | 9-84 | 10-84 | 11-84 |
| Mean cm | 25.1 | 28.1 | 30.6 | — | — | — |
| Mean kg | 0.18 | 0.27 | 0.32 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 18.0 | 19.5 | 17.8 | 22.2 | 26.4 | 22.0 |
| Moisture | 80.1 | 80.3 | 74.2 | 76.6 | 74.8 | 70.9 |
| Fat | 1.5 | 1.0 | 7.9 | 1.4 | 2.2 | 7.0 |
| Ash | 1.0 | 1.1 | 1.0 | 1.0 | 1.2 | 1.2 |
| **Fatty Acids** | | | | | | |
| 14:0 | ND | 2.3 | 2.4 | ND | ND | 2.5 |
| 16:0 | ND | 28.0 | 31.4 | ND | ND | 31.0 |
| 18:0 | ND | 6.2 | 4.8 | ND | ND | 5.0 |
| 16:1n7 | ND | 14.1 | 17.7 | ND | ND | 17.0 |
| 18:1n9 | ND | 14.2 | 21.5 | ND | ND | 18.3 |
| 18:1n7 | ND | 3.3 | 2.8 | ND | ND | 2.8 |
| 20:1n9 | ND | 0.6 | 0.6 | ND | ND | 0.6 |
| 22:1n11+13 | ND | 0.1 | 0.2 | ND | ND | 0.1 |
| 22:1n9 | ND | 0.1 | 0.1 | ND | ND | 0.1 |
| 18:2n6 | ND | 0.5 | 0.4 | ND | ND | 0.4 |
| 20:4n6 | ND | 2.8 | 1.5 | ND | ND | 1.7 |
| 22:4n6 | ND | 0.9 | 0.6 | ND | ND | 0.7 |
| 20:5n3 | ND | 4.2 | 1.4 | ND | ND | 2.6 |
| 22:5n6 | ND | 0.8 | 0.4 | ND | ND | 0.5 |
| 22:5n3 | ND | 2.0 | 1.3 | ND | ND | 1.6 |
| 22:6n3 | ND | 6.8 | 4.1 | ND | ND | 5.1 |

**Table 21—Ladyfish**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 8-85 | 9-26-85 | 9-27-85 | 8-85 | 9-26-85 | 9-27-85 |
| Mean cm | 48.5 | 37.7 | 37.7 | — | — | — |
| Mean kg | 1.41 | 0.86 (H&G) | 0.86 (H&G) | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 22.7 | 21.8 | 23.6 | 24.9 | 23.9 | 25.2 |
| Moisture | 69.3 | 75.3 | 74.5 | 64.7 | 71.5 | 71.4 |
| Fat | 8.6 | 2.8 | 1.9 | 10.3 | 4.0 | 3.2 |
| Ash | 1.1 | 1.2 | 1.2 | 0.8 | 1.3 | 1.2 |
| **Fatty Acids** | | | | | | |
| 14:0 | 1.7 | 2.3 | 2.0 | 1.6 | 2.4 | 2.4 |
| 16:0 | 30.6 | 27.0 | 25.3 | 30.6 | 29.0 | 25.9 |
| 18:0 | 7.5 | 8.0 | 8.6 | 7.4 | 8.4 | 8.6 |
| 16:1n7 | 8.6 | 6.2 | 6.0 | 8.7 | 6.6 | 6.2 |
| 18:1n9 | 30.0 | 20.9 | 19.1 | 30.3 | 21.9 | 19.6 |
| 18:1n7 | 2.5 | 3.0 | 4.0 | 2.5 | 3.4 | 4.3 |
| 20:1n9 | 0.8 | 1.0 | 0.8 | 0.8 | 1.0 | 0.9 |
| 22:1n11+13 | TR | TR | 0.1 | TR | TR | 0.1 |
| 22:1n9 | TR | TR | TR | TR | TR | TR |
| 18:2n6 | 0.6 | 0.6 | 0.9 | 0.7 | 0.7 | 0.9 |
| 20:4n6 | 1.3 | 3.3 | 5.0 | 1.3 | 3.3 | 3.7 |
| 22:4n6 | 0.4 | 1.0 | 1.2 | 0.4 | 0.9 | 1.2 |
| 20:5n3 | 1.7 | 2.5 | 3.2 | 1.7 | 2.1 | 2.8 |
| 22:5n6 | 0.4 | 1.1 | 0.8 | 0.4 | 0.9 | 0.8 |
| 22:5n3 | 1.4 | 2.0 | 2.8 | 1.4 | 1.6 | 2.7 |
| 22:6n3 | 4.8 | 10.0 | 7.8 | 4.7 | 8.3 | 6.7 |

**Table 22—Mackerel, King**

| | Raw | | Cooked | |
|---|---|---|---|---|
| Date: | 9-83 | 5-85 | 9-83 | 5-85 |
| Mean cm | 106.7 | 82.9 | — | — |
| Mean kg | 7.26 | 3.79 | — | — |
| **Proximate Compositions** | | | | |
| Protein | 20.3 | 23.0 | 26.0 | 26.7 |
| Moisture | 77.6 | 75.6 | 73.2 | 70.9 |
| Fat | 0.8 | 2.6 | 1.0 | 2.9 |
| Ash | 1.3 | 1.5 | 1.5 | 1.4 |
| **Fatty Acids** | | | | |
| 14:0 | 1.5 | 1.9 | 1.5 | ND |
| 16:0 | 21.6 | 28.4 | 20.4 | ND |
| 18:0 | 10.0 | 11.1 | 10.6 | ND |
| 16:1n7 | 3.2 | 3.5 | 3.2 | ND |
| 18:1n9 | 8.6 | 21.2 | 8.9 | ND |
| 18:1n7 | 2.8 | 3.6 | 3.0 | ND |
| 20:1n9 | 0.4 | 1.5 | 0.5 | ND |
| 22:1n11+13 | 0.3 | 0.1 | 0.4 | ND |
| 22:1n9 | 0.1 | 0.6 | 0.2 | ND |
| 18:2n6 | 1.3 | 0.9 | 1.4 | ND |
| 20:4n6 | 5.5 | 1.7 | 5.4 | ND |
| 22:4n6 | 0.8 | 0.5 | 0.8 | ND |
| 20:5n3 | 8.9 | 1.6 | 8.4 | ND |
| 22:5n6 | 1.7 | 1.0 | 1.6 | ND |
| 22:5n3 | 2.5 | 1.0 | 2.4 | ND |
| 22:6n3 | 14.0 | 7.8 | 13.0 | ND |

**Table 23—Mackerel, Spanish**

| | Raw | | | Cooked | |
|---|---|---|---|---|---|
| Date: | 8-12-85 | 8-20-85 | 10-85 | 8-12-85 | 10-85 |
| Mean cm | 38.1 | 41.4 | 44.6 | — | — |
| Mean kg | 0.48 | 0.62 | 0.92 | — | — |
| **Proximate Compositions** | | | | | |
| Protein | 19.9 | ND | 19.6 | 24.2 | 22.5 |
| Moisture | 78.9 | ND | 71.8 | 74.9 | 65.6 |
| Fat | 0.7 | ND | 8.9 | 1.2 | 12.0 |
| Ash | 1.4 | ND | 1.2 | 1.6 | 0.9 |
| **Fatty Acids** | | | | | |
| 14:0 | ND | 1.8 | 2.6 | ND | 2.4 |
| 16:0 | ND | 26.8 | 26.0 | ND | 25.8 |
| 18:0 | ND | 11.8 | 7.6 | ND | 8.3 |
| 16:1n7 | ND | 3.4 | 4.9 | ND | 4.4 |
| 18:1n9 | ND | 17.3 | 19.0 | ND | 20.6 |
| 18:1n7 | ND | 4.0 | 4.0 | ND | 4.1 |
| 20:1n9 | ND | 1.0 | 0.9 | ND | 1.1 |
| 22:1n11+13 | ND | TR | TR | ND | 0.1 |
| 22:1n9 | ND | TR | 0.2 | ND | 0.2 |
| 18:2n6 | ND | 0.7 | 0.9 | ND | 0.9 |
| 20:4n6 | ND | 2.2 | 1.5 | ND | 1.6 |
| 22:4n6 | ND | 0.4 | 0.3 | ND | 0.3 |
| 20:5n3 | ND | 3.0 | 4.8 | ND | 4.6 |
| 22:5n6 | ND | 1.2 | 0.7 | ND | 0.7 |
| 22:5n3 | ND | 1.2 | 1.4 | ND | 1.4 |
| 22:6n3 | ND | 15.6 | 14.5 | ND | 14.1 |

**Table 24—Mullet, Striped**

| | Raw | | | | |
|---|---|---|---|---|---|
| Date: | 2-84 | 8-84 | 5-85 | 11-4-85 | 11-4-85 |
| Mean cm | 33.9 | 27.6 | 32.3 | 41.0 | ND |
| Mean kg | 0.35 | 0.62 | 0.39 | 1.15 (ripe females) | ND (males) |
| **Proximate Compositions** | | | | | |
| Protein | 17.3 | 19.9 | 20.8 | 19.7 | 20.5 |
| Moisture | 81.6 | 74.2 | 80.1 | 68.5 | 70.9 |
| Fat | 1.0 | 3.0 | 0.9 | 11.8 | 8.8 |
| Ash | 1.0 | 1.1 | 1.0 | 1.1 | 1.0 |
| **Fatty Acids** | | | | | |
| 14:0 | ND | ND | 2.4 | 6.7 | 5.4 |
| 15:0 | ND | ND | 0.8 | 3.0 | 8.4 |
| 16:0 | ND | ND | 22.4 | 27.3 | 23.6 |
| 18:0 | ND | ND | 10.1 | 2.4 | 2.3 |
| 16:1n7 | ND | ND | 4.1 | 18.0 | 15.1 |
| 18:1n9 | ND | ND | 4.7 | 6.2 | 5.5 |
| 18:1n7 | ND | ND | 2.2 | 3.0 | 2.6 |
| 20:1n9 | ND | ND | 0.3 | 0.2 | 0.2 |
| 22:1n11+13 | ND | ND | TR | TR | TR |
| 22:1n9 | ND | ND | TR | TR | TR |
| 18:2n6 | ND | ND | 1.5 | 1.3 | 1.0 |
| 20:4n6 | ND | ND | 6.9 | 2.2 | 2.9 |
| 22:4n6 | ND | ND | 0.8 | 0.2 | 0.4 |
| 20:5n3 | ND | ND | 8.2 | 7.8 | 6.6 |
| 22:5n6 | ND | ND | 1.6 | TR | TR |
| 22:5n3 | ND | ND | 5.0 | 3.9 | 3.4 |
| 22:6n3 | ND | ND | 16.4 | 2.6 | 2.3 |

| | Cooked | | | |
|---|---|---|---|---|
| Date: | 2-84 | 8-84 | 5-85 | 11-4-85 |
| Mean cm | — | — | — | — |
| Mean kg | — | — | — | — (ripe females) |
| **Proximate Compositions** | | | | |
| Protein | 23.2 | 23.4 | 23.8 | 23.2 |
| Moisture | 75.1 | 69.2 | 76.9 | 64.6 |
| Fat | 1.7 | 6.4 | 0.9 | 11.8 |
| Ash | 1.1 | 1.2 | 1.0 | 1.0 |
| **Fatty Acids** | | | | |
| 14:0 | ND | ND | 1.2 | 6.5 |
| 15.0 | ND | ND | 1.7 | 3.0 |
| 16:0 | ND | ND | 20.2 | 28.1 |
| 18:0 | ND | ND | 10.8 | 2.9 |
| 16:1n7 | ND | ND | 2.5 | 17.5 |
| 18:1n9 | ND | ND | 4.9 | 10.0 |
| 18:1n7 | ND | ND | 2.7 | 3.0 |
| 20:1n9 | ND | ND | 0.6 | 0.2 |
| 22:1n11+13 | ND | ND | 1.0 | TR |
| 22:1n9 | ND | ND | 0.2 | TR |
| 18:2n6 | ND | ND | 0.9 | 1.2 |
| 20:4n6 | ND | ND | 9.0 | 2.2 |
| 22:4n6 | ND | ND | 1.2 | 0.1 |
| 20:5n3 | ND | ND | 6.7 | 7.3 |
| 22:5n6 | ND | ND | 2.2 | TR |
| 22:5n3 | ND | ND | 4.8 | 3.7 |
| 22:6n3 | ND | ND | 12.0 | 2.8 |

**Table 25—Pompano, Florida**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 7-84 | 8-84 | 4-86 | 7-84 | 8-84 | 4-86 |
| Mean cm | 33.0 | 19.0 | 31.2 | — | — | — |
| Mean kg | 0.74 | 0.17 | 0.69 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | ND | 18.7 | 18.2 | ND | 22.3 | 22.3 |
| Moisture | ND | 79.5 | 76.1 | ND | 74.9 | 69.7 |
| Fat | ND | 1.7 | 4.0 | ND | 1.1 | 5.9 |
| Ash | ND | 1.0 | 1.2 | ND | 1.2 | 1.3 |
| **Fatty Acids** | | | | | | |
| 14:0 | 1.5 | ND | ND | 1.6 | ND | ND |
| 16:0 | 28.9 | ND | ND | 28.8 | ND | ND |
| 18:0 | 11.6 | ND | ND | 11.7 | ND | ND |
| 16:1n7 | 3.3 | ND | ND | 3.2 | ND | ND |
| 18:1n9 | 25.3 | ND | ND | 24.7 | ND | ND |
| 18:1n7 | 2.3 | ND | ND | 2.2 | ND | ND |
| 20:1n9 | 1.9 | ND | ND | 1.8 | ND | ND |
| 22:1n11+13 | 0.2 | ND | ND | 0.2 | ND | ND |
| 22:1n9 | 0.6 | ND | ND | 0.5 | ND | ND |
| 18:2n6 | 0.4 | ND | ND | 0.4 | ND | ND |
| 20:4n6 | 1.5 | ND | ND | 1.7 | ND | ND |
| 22:4n6 | 0.8 | ND | ND | 0.9 | ND | ND |
| 20:5n3 | 1.3 | ND | ND | 1.4 | ND | ND |
| 22:5n6 | 0.8 | ND | ND | 0.9 | ND | ND |
| 22:5n3 | 2.1 | ND | ND | 2.0 | ND | ND |
| 22:6n3 | 6.1 | ND | ND | 6.3 | ND | ND |

**Table 26—Porgy, Longspine**

| | Raw | | | Cooked | |
|---|---|---|---|---|---|
| Date: | 5-3-83 | 5-24-83 | 5-84 | 5-24-83 | 5-84 |
| Mean cm | 25.9 | 24.6 | 22.3 | — | — |
| Mean kg | 0.43 | 0.34 | 0.22 | — | — |
| **Proximate Compositions** | | | | | |
| Protein | 18.6 | 16.9 | ND | 23.4 | ND |
| Moisture | 78.0 | 82.2 | ND | 75.4 | ND |
| Fat | 1.6 | 1.3 | ND | 2.6 | ND |
| Ash | 1.0 | 1.0 | ND | 1.0 | ND |
| **Fatty Acids** | | | | | |
| 14:0 | 2.7 | ND | 1.7 | ND | 2.1 |
| 16:0 | 18.4 | ND | 17.9 | ND | 17.4 |
| 18:0 | 7.2 | ND | 7.6 | ND | 7.5 |
| 16:1n7 | 4.2 | ND | 3.1 | ND | 3.7 |
| 18:1n9 | 19.1 | ND | 12.5 | ND | 15.9 |
| 18:1n7 | 3.8 | ND | 4.0 | ND | 4.1 |
| 20:1n9 | 1.8 | ND | 1.7 | ND | 1.8 |
| 22:1n11+13 | 1.0 | ND | TR | ND | TR |
| 22:1n9 | 0.5 | ND | 0.5 | ND | 0.7 |
| 18:2n6 | 0.6 | ND | 0.8 | ND | 0.8 |
| 20:4n6 | 2.3 | ND | 2.7 | ND | 2.3 |
| 22:4n6 | 0.9 | ND | 0.9 | ND | 0.8 |
| 20:5n3 | 7.0 | ND | 8.4 | ND | 8.0 |
| 22:5n6 | 0.6 | ND | 0.9 | ND | 0.7 |
| 22:5n3 | 4.2 | ND | 5.2 | ND | 4.7 |
| 22:6n3 | 11.0 | ND | 16.3 | ND | 13.2 |

**Table 27—Porgy, Red**

| | Raw | | | Cooked | |
|---|---|---|---|---|---|
| Date: | 4-83 | 6-83 | 8-83 | 6-83 | 8-83 |
| Mean cm | 40.5 | 35.9 | ND | — | — |
| Mean kg | 1.19 | 0.97 | ND | — | — |
| **Proximate Compositions** | | | | | |
| Protein | 22.4 | 21.4 | ND | 27.3 | ND |
| Moisture | 76.7 | 77.8 | ND | 73.3 | ND |
| Fat | 1.3 | 0.7 | ND | 0.8 | ND |
| Ash | 1.4 | 1.5 | ND | 1.6 | ND |
| **Fatty Acids** | | | | | |
| 14:0 | 0.8 | ND | 1.7 | ND | 1.5 |
| 16:0 | 22.2 | ND | 20.2 | ND | 19.6 |
| 18:0 | 7.3 | ND | 6.4 | ND | 6.3 |
| 16:1n7 | 1.9 | ND | 2.4 | ND | 1.8 |
| 18:1n9 | 9.6 | ND | 9.4 | ND | 8.2 |
| 18:1n7 | 2.1 | ND | 2.2 | ND | 2.0 |
| 20:1n9 | 1.1 | ND | 0.6 | ND | 0.5 |
| 22:1n11+13 | 0.4 | ND | TR | ND | TR |
| 22:1n9 | 0.2 | ND | 0.2 | ND | TR |
| 18:2n6 | 0.6 | ND | 0.8 | ND | 0.8 |
| 20:4n6 | 4.1 | ND | 2.7 | ND | 2.9 |
| 22:4n6 | 1.6 | ND | 1.0 | ND | 0.9 |
| 20:5n3 | 2.6 | ND | 4.8 | ND | 4.4 |
| 22:5n6 | 2.2 | ND | 1.9 | ND | 1.9 |
| 22:5n3 | 2.9 | ND | 2.7 | ND | 2.6 |
| 22:6n3 | 28.9 | ND | 25.7 | ND | 29.5 |

**Table 28—Seatrout, Spotted**

| | Raw | | Cooked | |
|---|---|---|---|---|
| Date: | 5-85 | 9-85 | 5-85 | 9-85 |
| Mean cm | 46.6 | 31.4 | — | — |
| Mean kg | 1.07 | 0.3 | — | — |
| **Proximate Compositions** | | | | |
| Protein | 19.5 | 19.2 | 22.4 | 22.8 |
| Moisture | 79.2 | 79.6 | 70.6 | 76.1 |
| Fat | 3.7 | 1.6 | 8.0 | 1.1 |
| Ash | 1.0 | 1.1 | 1.0 | 1.2 |
| **Fatty Acids** | | | | |
| 14:0 | 3.0 | 3.3 | 2.9 | 1.6 |
| 16:0 | 27.8 | 22.0 | 27.5 | 22.7 |
| 18:0 | 5.5 | 7.5 | 5.1 | 9.8 |
| 16:1n7 | 16.2 | 8.3 | 17.3 | 6.6 |
| 18:1n9 | 18.9 | 9.7 | 19.4 | 10.1 |
| 18:1n7 | 3.7 | 3.6 | 3.6 | 3.6 |
| 20:1n9 | 0.6 | 0.6 | 0.5 | 0.5 |
| 22:1n11+13 | TR | TR | TR | TR |
| 22:1n9 | TR | TR | TR | TR |
| 18:2n6 | 0.7 | 1.2 | 0.7 | 0.9 |
| 20:4n6 | 1.8 | 3.0 | 2.3 | 4.0 |
| 22:4n6 | 0.9 | 0.7 | TR | 0.6 |
| 20:5n3 | 4.2 | 5.4 | 4.2 | 5.0 |
| 22:5n6 | 0.8 | 1.2 | TR | 1.4 |
| 22:5n3 | 1.6 | 2.1 | 1.5 | 2.6 |
| 22:6n3 | 6.0 | 11.2 | 5.6 | 13.9 |

**Table 29—Shad, American**

| | Raw | | | |
|---|---|---|---|---|
| Date: | 3-3-83 | 3-15-83 | 4-84 | 2-85 |
| Mean cm | ND | 40.5 | ND | 39.6 |
| Mean kg | 1.14 | 1.12 | 1.18 | 1.04 |
| **Proximate Compositions** | | | | |
| Protein | 18.7 | 17.6 | 19.0 | 21.0 |
| Moisture | 65.6 | 59.8 | 68.7 | 67.5 |
| Fat | 14.5 | 20.3 | 10.6 | 13.0 |
| Ash | 1.4 | 1.2 | 1.2 | 1.5 |
| **Fatty Acids** | | | | |
| 14:0 | 4.7 | 4.5 | 4.2 | 3.9 |
| 16:0 | 12.3 | 12.3 | 12.5 | 13.1 |
| 18:0 | 2.1 | 2.0 | 2.2 | 2.6 |
| 16:1n7 | 2.3 | 2.4 | 2.9 | 2.7 |
| 18:1n9 | 7.1 | 7.4 | 7.7 | 8.0 |
| 18:1n7 | 2.0 | 2.2 | 2.3 | 2.7 |
| 20:1n9 | 20.6 | 19.8 | 20.3 | 18.4 |
| 22:1n11+13 | 19.1 | 19.8 | 17.7 | 22.1 |
| 22:1n9 | 1.2 | 1.1 | 1.4 | 1.4 |
| 18:2n6 | 1.6 | 1.3 | 1.2 | 1.1 |
| 20:4n6 | 0.2 | 0.2 | 0.3 | 0.2 |
| 22:4n6 | 0.3 | 0.1 | TR | TR |
| 20:5n3 | 3.7 | 4.0 | 3.8 | 3.4 |
| 22:5n6 | 0.1 | 0.2 | TR | TR |
| 22:5n3 | 1.5 | 1.5 | 1.8 | 1.3 |
| 22:6n3 | 7.2 | 7.2 | 6.6 | 4.9 |

| | Cooked | |
|---|---|---|
| Date: | 4-84 | 2-85 |
| Mean cm | — | — |
| Mean kg | — | — |
| **Proximate Compositions** | | |
| Protein | 20.1 | 23.0 |
| Moisture | 64.5 | 62.8 |
| Fat | 14.6 | 15.1 |
| Ash | 1.2 | 0.9 |
| **Fatty Acids** | | |
| 14:0 | 4.3 | ND |
| 16:0 | 12.0 | ND |
| 18:0 | 2.0 | ND |
| 16:1n7 | 2.7 | ND |
| 18:1n9 | 7.4 | ND |
| 18:1n7 | 2.2 | ND |
| 20:1n9 | 20.1 | ND |
| 22:1n11+13 | 19.6 | ND |
| 22:1n9 | 1.4 | ND |
| 18:2n6 | 1.4 | ND |
| 20:4n6 | 0.3 | ND |
| 22:4n6 | TR | ND |
| 20:5n3 | 3.9 | ND |
| 22:5n6 | TR | ND |
| 22:5n3 | 1.5 | ND |
| 22:6n3 | 6.2 | ND |

**Table 30—Shark, Atlantic Sharpnose**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 12-83 | 6-85 | 8-85 | 12-83 | 6-85 | 8-85 |
| Mean cm | ND | 50.5 | 57.3 | — | — | — |
| Mean kg | [1]7.60 | [1]3.90 | [1]6.80 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 26.2 | 21.9 | 23.0 | 26.6 | 24.0 | 25.5 |
| Moisture | 72.6 | 76.9 | 75.7 | 72.1 | 74.7 | 73.2 |
| Fat | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 |
| Ash | 1.4 | 1.5 | 1.4 | 1.4 | 1.5 | 1.5 |
| **Fatty Acids** | | | | | | |
| 14:0 | 0.3 | TR | 0.2 | 0.8 | TR | TR |
| 16:0 | 18.2 | 15.8 | 15.9 | 17.3 | 15.0 | 16.3 |
| 18:0 | 10.4 | 16.0 | 16.0 | 10.3 | 17.3 | 17.1 |
| 16:1n7 | 1.0 | 0.8 | 0.8 | 1.2 | 0.9 | 0.8 |
| 18:1n9 | 6.4 | 6.1 | 6.5 | 6.4 | 6.8 | 6.5 |
| 18:1n7 | 3.7 | 3.6 | 3.9 | 3.3 | 4.4 | 3.9 |
| 20:1n9 | 0.5 | 0.3 | 0.5 | 3.2 | 0.2 | 0.4 |
| 22:1n11+13 | 0.4 | TR | TR | 2.9 | TR | TR |
| 22:1n9 | TR | TR | TR | 0.2 | TR | TR |
| 18:2n6 | 0.4 | 0.4 | 0.4 | 0.6 | 0.5 | 0.5 |
| 20:4n6 | 6.6 | 9.6 | 7.1 | 6.8 | 9.7 | 7.9 |
| 22:4n6 | 6.2 | 5.1 | 6.2 | 5.2 | 4.5 | 6.4 |
| 20:5n3 | 1.9 | 3.0 | 1.8 | 2.5 | 2.7 | 2.1 |
| 22:5n6 | 3.7 | 3.1 | 2.8 | 3.2 | 2.8 | 2.9 |
| 22:5n3 | 3.5 | 3.0 | 3.4 | 3.3 | 2.6 | 3.4 |
| 22:6n3 | 18.5 | 18.1 | 19.0 | 17.2 | 17.9 | 19.2 |

[1]Whole weight estimated from carcass.

**Table 31—Shark, Lemon**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 9-83 | 12-83 | 6-85 | 9-83 | 12-83 | 6-85 |
| Mean cm | ND | ND | 183.0 | — | — | — |
| Mean kg | [1]13.60 | [1]22.70 | [2]60.50 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 19.5 | ND | 19.9 | 25.8 | ND | 23.4 |
| Moisture | 79.8 | ND | 79.1 | 73.3 | ND | 75.5 |
| Fat | 0.5 | ND | 0.6 | 0.7 | ND | 0.8 |
| Ash | 1.1 | ND | 1.4 | 1.2 | ND | 1.4 |
| **Fatty Acids** | | | | | | |
| 14:0 | 1.0 | 0.3 | 0.2 | 0.6 | 0.4 | 0.2 |
| 16:0 | 12.2 | 16.4 | 17.1 | 15.7 | 14.8 | 17.3 |
| 18:0 | 8.4 | 12.4 | 14.8 | 9.7 | 12.5 | 15.0 |
| 16:1n7 | 1.3 | 2.0 | 1.1 | 1.6 | 1.7 | 1.1 |
| 18:1n9 | 11.5 | 6.5 | 8.8 | 11.6 | 6.7 | 9.2 |
| 18:1n7 | 3.1 | 6.6 | 4.0 | 3.6 | 6.4 | 4.2 |
| 20:1n9 | TR | 0.8 | 0.7 | 0.9 | 1.1 | 0.7 |
| 22:1n11+13 | 1.4 | TR | TR | 0.4 | TR | TR |
| 22:1n9 | TR | TR | TR | TR | 0.4 | TR |
| 18:2n6 | TR | 1.2 | 0.6 | 0.4 | 1.2 | 0.6 |
| 20:4n6 | 4.4 | 4.6 | 8.4 | 4.8 | 4.5 | 8.4 |
| 22:4n6 | 8.8 | 4.2 | 5.7 | 12.2 | 4.0 | 6.0 |
| 20:5n3 | 0.9 | 3.2 | 2.2 | 0.9 | 3.1 | 2.2 |
| 22:5n6 | 2.8 | 1.3 | 2.9 | 3.9 | 1.1 | 2.9 |
| 22:5n3 | 1.8 | 5.3 | 3.3 | 2.4 | 5.3 | 3.7 |
| 22:6n3 | 9.0 | 21.0 | 16.6 | 11.3 | 20.6 | 16.8 |

[1]Whole weight estimated from carcass weight.
[2]Weight estimated from length.

**Table 32—Shark, Sandbar**

| | Raw | Cooked |
|---|---|---|
| Date: | 8-83 | 8-83 |
| Mean cm | ND | — |
| Mean kg | [1]82.60 | — |
| **Proximate Compositions** | | |
| Protein | 18.2 | 25.7 |
| Moisture | 81.1 | 73.1 |
| Fat | 0.5 | 0.9 |
| Ash | 1.2 | 1.2 |
| **Fatty Acids** | | |
| 14:0 | 0.1 | ND |
| 16:0 | 12.9 | ND |
| 18:0 | 12.1 | ND |
| 16:1n7 | 0.8 | ND |
| 18:1n9 | 6.9 | ND |
| 18:1n7 | 3.9 | ND |
| 20:1n9 | 0.4 | ND |
| 22:1n11+13 | TR | ND |
| 22:1n9 | 0.2 | ND |
| 18:2n6 | 0.6 | ND |
| 20:4n6 | 13.8 | ND |
| 22:4n6 | 6.8 | ND |
| 20:5n3 | 1.4 | ND |
| 22:5n6 | 3.4 | ND |
| 22:5n3 | 1.2 | ND |
| 22:6n3 | 12.0 | ND |

[1]Whole weight estimated from carcass weight.

**Table 33—Shark, Scalloped Hammerhead**

| | Raw | | Cooked | |
|---|---|---|---|---|
| Date: | 12-83 | 6-85 | 12-83 | 6-85 |
| Mean cm | ND | 229.0 | — | — |
| Mean kg | [1]149.70 | [2]63.50 | — | — |
| **Proximate Compositions** | | | | |
| Protein | 22.4 | 23.8 | 31.1 | 27.2 |
| Moisture | 76.9 | 75.0 | 68.0 | 71.4 |
| Fat | 0.5 | 0.8 | 0.8 | 0.9 |
| Ash | 1.2 | 1.5 | 1.2 | 1.5 |
| **Fatty Acids** | | | | |
| 14:0 | 0.3 | TR | 0.4 | 0.2 |
| 16:0 | 14.9 | 13.2 | 14.9 | 13.6 |
| 18:0 | 8.9 | 16.5 | 9.5 | 16.7 |
| 16:1n7 | 2.1 | 0.7 | 2.3 | 0.7 |
| 18:1n9 | 12.6 | 5.2 | 12.8 | 5.3 |
| 18:1n7 | 5.2 | 4.9 | 5.6 | 5.2 |
| 20:1n9 | 1.0 | 0.5 | 1.1 | 0.5 |
| 22:1n11+13 | TR | TR | TR | TR |
| 22:1n9 | 0.5 | TR | 0.5 | TR |
| 18:2n6 | 0.4 | 0.7 | 0.4 | 0.8 |
| 20:4n6 | 5.0 | 7.4 | 5.3 | 7.3 |
| 22:4n6 | 8.4 | 5.4 | 8.3 | 5.2 |
| 20:5n3 | 1.1 | 2.9 | 1.2 | 2.7 |
| 22:5n6 | 3.1 | 1.8 | 3.0 | 1.6 |
| 22:5n3 | 2.8 | 5.4 | 2.8 | 5.4 |
| 22:6n3 | 11.3 | 18.9 | 10.9 | 17.7 |

[1]Whole weight estimated from carcass weight.
[2]Weight estimated from length.

**Table 34—Shark, Tiger**

| | Raw | | Cooked | |
|---|---|---|---|---|
| Date: | 8-83 | 7-85 | 8-83 | 7-85 |
| Mean cm | ND | ND | — | — |
| Mean kg | [1]11.79 (chunk) | 104.33 | — | — |
| **Proximate Compositions** | | | | |
| Protein | 17.2 | 21.2 | 21.2 | 25.6 |
| Moisture | 82.1 | 78.0 | 77.9 | 73.4 |
| Fat | 0.6 | 0.7 | 0.7 | 0.9 |
| Ash | 1.2 | 1.1 | 1.2 | 1.2 |
| **Fatty Acids** | | | | |
| 14:0 | 0.3 | 0.4 | ND | 0.3 |
| 16:0 | 8.7 | 11.6 | ND | 9.5 |
| 18:0 | 13.3 | 17.8 | ND | 19.3 |
| 16:1n7 | 1.6 | 2.2 | ND | 1.7 |
| 18:1n9 | 16.9 | 21.0 | ND | 18.6 |
| 18:1n7 | 4.1 | 4.6 | ND | 4.4 |
| 20:1n9 | 0.4 | 0.8 | ND | 0.8 |
| 22:1n11+13 | 0.6 | TR | ND | TR |
| 22:1n9 | TR | TR | ND | TR |
| 18:2n6 | 1.2 | 1.3 | ND | 1.4 |
| 20:4n6 | 8.1 | 11.0 | ND | 11.6 |
| 22:4n6 | 3.0 | 2.5 | ND | 3.0 |
| 20:5n3 | 1.9 | 1.3 | ND | 1.2 |
| 22:5n6 | 1.6 | 1.4 | ND | 1.6 |
| 22:5n3 | 3.1 | 1.7 | ND | 2.0 |
| 22:6n3 | 12.4 | 10.2 | ND | 9.9 |

[1]Estimated whole weight not available.

**Table 35—Sheepshead**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 12-84 | 1-85 | 5-85 | 12-84 | 1-85 | 5-85 |
| Mean cm | 57.2 | 36.5 | 54.2 | — | — | — |
| Mean kg | 3.43 | 1.14 | 4.89 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 21.7 | 20.2 | 22.4 | 22.1 | 23.7 | 25.7 |
| Moisture | 76.6 | 79.7 | 77.4 | 72.4 | 75.4 | 73.2 |
| Fat | 1.7 | 1.2 | 1.9 | 2.1 | 1.6 | 2.4 |
| Ash | 1.3 | 1.1 | 1.2 | 1.3 | 1.2 | 1.3 |
| **Fatty Acids** | | | | | | |
| 14:0 | 2.7 | 2.4 | 2.5 | 3.3 | 1.8 | 2.5 |
| 16:0 | 22.8 | 23.1 | 23.0 | 22.4 | 21.8 | 23.7 |
| 18:0 | 5.3 | 7.0 | 7.0 | 5.4 | 7.7 | 7.3 |
| 16:1n7 | 8.0 | 5.1 | 5.9 | 9.2 | 4.7 | 6.2 |
| 18:1n9 | 17.2 | 15.9 | 27.6 | 19.7 | 18.4 | 30.8 |
| 18:1n7 | 3.2 | 3.2 | 3.1 | 3.7 | 3.6 | 3.2 |
| 20:1n9 | 0.7 | 0.6 | 1.0 | 0.9 | 0.6 | 1.1 |
| 22:1n11+13 | 0.1 | TR | 0.2 | 0.2 | TR | 0.1 |
| 22:1n9 | 0.2 | 0.1 | 0.3 | 0.3 | TR | 0.3 |
| 18:2n6 | 0.5 | 3.2 | 0.8 | 0.4 | 1.4 | 0.8 |
| 20:4n6 | 7.0 | 3.6 | 3.2 | 5.0 | 6.7 | 2.9 |
| 22:4n6 | 1.6 | 0.9 | 0.8 | 1.6 | 1.1 | 0.7 |
| 20:5n3 | 4.8 | 4.3 | 2.5 | 4.0 | 4.9 | 2.1 |
| 22:5n6 | 1.0 | 1.2 | 0.5 | 0.8 | 0.9 | 0.4 |
| 22:5n3 | 3.3 | 3.0 | 2.1 | 3.1 | 3.2 | 1.7 |
| 22:6n3 | 6.8 | 8.2 | 4.2 | 5.6 | 8.8 | 3.1 |

**Table 36—Snapper, Red**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 11-83 | 8-84 | 9-85 | 11-83 | 8-84 | 9-85 |
| Mean cm | 55.7 | 31.1 | 33.6 | — | — | — |
| Mean kg | 2.40 | 0.53 | 0.67 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 21.2 | 18.5 | 19.5 | 24.7 | 24.4 | 25.1 |
| Moisture | 76.4 | 81.1 | 79.2 | 71.7 | 74.4 | 73.9 |
| Fat | 1.5 | 0.7 | 1.3 | 3.2 | 0.5 | 1.3 |
| Ash | 1.2 | 0.9 | 1.2 | 1.2 | 1.1 | 1.3 |
| **Fatty Acids** | | | | | | |
| 14:0 | 2.7 | ND | 2.2 | ND | ND | 2.4 |
| 16:0 | 22.4 | ND | 25.2 | ND | ND | 25.1 |
| 18:0 | 8.5 | ND | 10.1 | ND | ND | 9.9 |
| 16:1n7 | 4.4 | ND | 4.0 | ND | ND | 3.9 |
| 18:1n9 | 18.7 | ND | 15.3 | ND | ND | 14.2 |
| 18:1n7 | 2.4 | ND | 3.0 | ND | ND | 3.0 |
| 20:1n9 | 1.5 | ND | 1.0 | ND | ND | 0.8 |
| 22:1n11+13 | 0.9 | ND | TR | ND | ND | TR |
| 22:1n9 | 0.2 | ND | TR | ND | ND | TR |
| 18:2n6 | 0.8 | ND | 0.6 | ND | ND | 0.6 |
| 20:4n6 | 2.1 | ND | 3.5 | ND | ND | 3.2 |
| 22:4n6 | 0.6 | ND | 0.8 | ND | ND | 0.8 |
| 20:5n3 | 3.0 | ND | 3.9 | ND | ND | 4.0 |
| 22:5n6 | 1.3 | ND | 1.2 | ND | ND | 1.3 |
| 22:5n3 | 1.7 | ND | 2.1 | ND | ND | 2.1 |
| 22:6n3 | 16.9 | ND | 20.5 | ND | ND | 20.2 |

**Table 37—Snapper, Vermilion**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 6-83 | 8-83 | 9-84 | 6-83 | 8-83 | 9-84 |
| Mean cm | 32.5 | 56.8 | 36.2 | — | — | — |
| Mean kg | 0.57 | 2.00 | 0.78 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 18.3 | 21.3 | 21.0 | 23.9 | 25.0 | 26.9 |
| Moisture | 80.5 | 79.0 | 77.1 | 75.1 | 74.0 | 72.5 |
| Fat | 0.6 | 0.7 | 0.8 | 0.8 | 0.7 | 1.1 |
| Ash | 1.2 | 1.0 | 1.2 | 1.4 | 1.4 | 1.2 |
| **Fatty Acids** | | | | | | |
| 14:0 | ND | 1.9 | ND | ND | 1.6 | ND |
| 16:0 | ND | 20.6 | ND | ND | 21.2 | ND |
| 18:0 | ND | 8.9 | ND | ND | 8.6 | ND |
| 16:1n7 | ND | 1.4 | ND | ND | 1.2 | ND |
| 18:1n9 | ND | 7.0 | ND | ND | 6.3 | ND |
| 18:1n7 | ND | 1.6 | ND | ND | 1.3 | ND |
| 20:1n9 | ND | 0.9 | ND | ND | 0.6 | ND |
| 22:1n11+13 | ND | 0.3 | ND | ND | 0.5 | ND |
| 22:1n9 | ND | 0.5 | ND | ND | 0.3 | ND |
| 18:2n6 | ND | 0.9 | ND | ND | 0.9 | ND |
| 20:4n6 | ND | 4.2 | ND | ND | 4.2 | ND |
| 22:4n6 | ND | 0.8 | ND | ND | 0.7 | ND |
| 20:5n3 | ND | 3.2 | ND | ND | 3.0 | ND |
| 22:5n6 | ND | 3.5 | ND | ND | 3.7 | ND |
| 22:5n3 | ND | 1.4 | ND | ND | 1.2 | ND |
| 22:6n3 | ND | 26.3 | ND | ND | 28.7 | ND |

**Table 38—Spot**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 8-84 | 9-84 | 10-84 | 8-84 | 9-84 | 10-84 |
| Mean cm | 21.1 | 21.8 | 21.5 | — | — | — |
| Mean kg | 0.15 | 0.17 | 0.17 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 18.6 | 18.1 | 19.0 | 23.0 | 23.0 | 21.4 |
| Moisture | 75.4 | 75.3 | 73.0 | 70.2 | 69.5 | 66.3 |
| Fat | 4.8 | 5.6 | 6.0 | 6.7 | 7.3 | 10.9 |
| Ash | 1.1 | 1.0 | 1.1 | 1.0 | 0.9 | 0.9 |
| **Fatty Acids** | | | | | | |
| 14:0 | ND | ND | 2.3 | ND | ND | ND |
| 16:0 | ND | ND | 25.7 | ND | ND | ND |
| 18:0 | ND | ND | 7.2 | ND | ND | ND |
| 16:1n7 | ND | ND | 9.0 | ND | ND | ND |
| 18:1n9 | ND | ND | 17.8 | ND | ND | ND |
| 18:1n7 | ND | ND | 3.1 | ND | ND | ND |
| 20:1n9 | ND | ND | 1.5 | ND | ND | ND |
| 22:1n11+13 | ND | ND | 0.3 | ND | ND | ND |
| 22:1n9 | ND | ND | 0.2 | ND | ND | ND |
| 18:2n6 | ND | ND | 0.6 | ND | ND | ND |
| 20:4n6 | ND | ND | 1.4 | ND | ND | ND |
| 22:4n6 | ND | ND | 0.7 | ND | ND | ND |
| 20:5n3 | ND | ND | 3.0 | ND | ND | ND |
| 22:5n6 | ND | ND | 0.5 | ND | ND | ND |
| 22:5n3 | ND | ND | 1.8 | ND | ND | ND |
| 22:6n3 | ND | ND | 4.6 | ND | ND | ND |

**Table 39—Swordfish**

| | Raw | Cooked |
|---|---|---|
| Date: | 7-83 | 7-83 |
| Mean cm | * | — |
| Mean kg | * | — |
| **Proximate Compositions** | | |
| Protein | 19.9 | 23.8 |
| Moisture | 76.0 | 69.9 |
| Fat | 3.7 | 5.8 |
| Ash | 1.3 | 1.2 |
| **Fatty Acids** | | |
| 14:0 | 1.9 | 1.6 |
| 16:0 | 16.9 | 17.7 |
| 18:0 | 5.0 | 5.8 |
| 16:1n7 | 3.1 | 2.9 |
| 18:1n9 | 26.6 | 29.1 |
| 18:1n7 | 2.5 | 2.3 |
| 20:1n9 | 4.3 | 5.3 |
| 22:1n11+13 | 1.2 | 1.3 |
| 22:1n9 | 0.6 | 0.7 |
| 18:2n6 | 0.6 | 0.6 |
| 20:4n6 | 1.8 | 1.5 |
| 22:4n6 | 0.6 | 0.6 |
| 20:5n3 | 2.9 | 2.2 |
| 22:5n6 | 1.0 | 0.8 |
| 22:5n3 | 2.5 | 2.2 |
| 22:6n3 | 17.9 | 12.2 |

*Steaks, no data available on length and weight.

**Table 40—Tilefish**

| | Raw | | Cooked |
|---|---|---|---|
| Date: | 4-83 | 4-84 | 4-84 |
| Mean cm | 60.3 | 64.6 | — |
| Mean kg | 2.92 | 2.56 | — |
| **Proximate Compositions** | | | |
| Protein | 17.4 | 17.7 | 23.8 |
| Moisture | 81.0 | 81.1 | 74.6 |
| Fat | 1.1 | 0.8 | 0.7 |
| Ash | 1.5 | 1.0 | 1.1 |
| **Fatty Acids** | | | |
| 14:0 | 2.7 | 1.9 | 2.2 |
| 16:0 | 18.6 | 18.9 | 18.0 |
| 18:0 | 5.2 | 5.6 | 5.8 |
| 16:1n7 | 5.0 | 3.2 | 3.7 |
| 18:1n9 | 18.0 | 16.4 | 17.8 |
| 18:1n7 | 4.3 | 3.2 | 3.6 |
| 20:1n9 | 2.9 | 2.8 | 3.4 |
| 22:1n11+13 | 0.7 | TR | 0.1 |
| 22:1n9 | 0.8 | 0.8 | 1.1 |
| 18:2n6 | 0.7 | 0.7 | 0.7 |
| 20:4n6 | 2.3 | 2.6 | 2.3 |
| 22:4n6 | 1.0 | 0.9 | 0.8 |
| 20:5n3 | 3.3 | 2.4 | 2.6 |
| 22:5n6 | 1.1 | 1.4 | 1.2 |
| 22:5n3 | 3.9 | 3.0 | 2.8 |
| 22:6n3 | 17.2 | 23.4 | 19.0 |

**Table 41—Tilefish, Blueline**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 6-83 | 8-83 | 5-85 | 6-83 | 8-83 | 5-85 |
| Mean cm | 56.6 | ND | 69.5 | — | — | — |
| Mean kg | 2.35 | ND | 4.07 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 18.6 | 19.4 | 21.1 | 25.6 | 23.8 | 25.9 |
| Moisture | 77.6 | 76.7 | 78.9 | 72.5 | 70.7 | 73.4 |
| Fat | 3.5 | 4.8 | 1.4 | 2.0 | 5.7 | 1.9 |
| Ash | 1.1 | 1.2 | 1.5 | 1.1 | 1.1 | 1.3 |
| **Fatty Acids** | | | | | | |
| 14:0 | 3.2 | ND | 2.9 | 3.4 | ND | 2.7 |
| 16:0 | 17.8 | ND | 24.2 | 18.7 | ND | 25.0 |
| 18:0 | 5.3 | ND | 8.0 | 6.1 | ND | 9.5 |
| 16:1n7 | 4.9 | ND | 4.3 | 4.3 | ND | 3.9 |
| 18:1n9 | 20.7 | ND | 14.3 | 20.0 | ND | 15.9 |
| 18:1n7 | 3.7 | ND | 3.2 | 3.9 | ND | 3.6 |
| 20:1n9 | 4.2 | ND | 1.7 | 3.5 | ND | 2.0 |
| 22:1n11+13 | 2.4 | ND | 0.5 | 1.6 | ND | TR |
| 22:1n9 | 1.1 | ND | 0.8 | 0.9 | ND | 0.6 |
| 18:2n6 | 0.9 | ND | 0.9 | 0.8 | ND | 0.9 |
| 20:4n6 | 1.7 | ND | 2.7 | 2.2 | ND | 3.0 |
| 22:4n6 | 0.8 | ND | 1.4 | 0.8 | ND | 1.0 |
| 20:5n3 | 2.8 | ND | 2.8 | 2.6 | ND | 3.2 |
| 22:5n6 | 0.7 | ND | 1.8 | 0.8 | ND | 1.8 |
| 22:5n3 | 3.6 | ND | 3.2 | 3.4 | ND | 3.2 |
| 22:6n3 | 12.6 | ND | 15.0 | 13.4 | ND | 16.6 |

**Table 42—Triggerfish, Gray**

| | Raw | | | |
|---|---|---|---|---|
| Date: | 4-83 | 4-84 | 9-84 | 9-85 |
| Mean cm | 41.3 | 54.2 | 36.0 | 31.2 |
| Mean kg | 1.42 | 4.37 | 0.98 | 0.80 |
| **Proximate Compositions** | | | | |
| Protein | 21.9 | 21.0 | 20.1 | 19.4 |
| Moisture | 78.3 | 78.6 | 79.3 | 79.9 |
| Fat | 1.0 | 0.7 | 0.5 | 0.6 |
| Ash | 1.2 | 1.3 | 1.5 | 1.2 |
| **Fatty Acids** | | | | |
| 14:0 | 0.2 | ND | ND | 0.4 |
| 16:0 | 14.0 | ND | ND | 15.4 |
| 18:0 | 10.8 | ND | ND | 13.4 |
| 16:1n7 | 0.6 | ND | ND | 1.4 |
| 18:1n9 | 11.6 | ND | ND | 9.0 |
| 18:1n7 | 3.1 | ND | ND | 3.6 |
| 20:1n9 | 0.3 | ND | ND | 0.3 |
| 22:1n11+13 | 0.1 | ND | ND | 0.2 |
| 22:1n9 | TR | ND | ND | TR |
| 18:2n6 | 0.4 | ND | ND | 0.5 |
| 20:4n6 | 8.0 | ND | ND | 13.9 |
| 22:4n6 | 0.9 | ND | ND | 1.1 |
| 20:5n3 | 3.6 | ND | ND | 4.7 |
| 22:5n6 | 1.6 | ND | ND | 1.4 |
| 22:5n3 | 2.8 | ND | ND | 1.8 |
| 22:6n3 | 28.5 | ND | ND | 20.2 |

| | Cooked | | |
|---|---|---|---|
| Date: | 4-84 | 9-84 | 9-85 |
| Mean cm | — | — | — |
| Mean kg | — | — | — |
| **Proximate Compositions** | | | |
| Protein | 25.9 | 26.0 | 26.1 |
| Moisture | 72.2 | 73.1 | 73.0 |
| Fat | 1.4 | 0.8 | 0.7 |
| Ash | 1.2 | 1.3 | 1.2 |
| **Fatty Acids** | | | |
| 14:0 | ND | ND | 0.5 |
| 16:0 | ND | ND | 16.3 |
| 18:0 | ND | ND | 13.5 |
| 16:1n7 | ND | ND | 1.5 |
| 18:1n9 | ND | ND | 9.3 |
| 18:1n7 | ND | ND | 3.8 |
| 20:1n9 | ND | ND | 0.3 |
| 22:1n11+13 | ND | ND | 0.2 |
| 22:1n9 | ND | ND | TR |
| 18:2n6 | ND | ND | 0.5 |
| 20:4n6 | ND | ND | 13.7 |
| 22:4n6 | ND | ND | 1.0 |
| 20:5n3 | ND | ND | 4.8 |
| 22:5n6 | ND | ND | 1.3 |
| 22:5n3 | ND | ND | 1.9 |
| 22:6n3 | ND | ND | 19.2 |

**Table 43—Weakfish**

| | Raw | | | Cooked | | |
|---|---|---|---|---|---|---|
| Date: | 6-83 | 5-84 | 8-84 | 6-83 | 5-84 | 8-84 |
| Mean cm | ND | 72.4 | 27.8 | — | — | — |
| Mean kg | ND | 3.56 | 0.47 | — | — | — |
| **Proximate Compositions** | | | | | | |
| Protein | 19.5 | 19.0 | 17.6 | 23.9 | 24.5 | 23.5 |
| Moisture | 77.5 | 78.7 | 80.9 | 72.0 | 73.3 | 72.1 |
| Fat | 2.6 | 1.5 | 1.0 | 3.7 | 0.8 | 2.2 |
| Ash | 1.0 | 1.1 | 1.1 | 1.0 | 1.2 | 1.0 |
| **Fatty Acids** | | | | | | |
| 14:0 | 3.0 | 2.9 | ND | 3.2 | 2.6 | ND |
| 16:0 | 22.2 | 19.8 | ND | 22.3 | 20.0 | ND |
| 18:0 | 5.0 | 5.1 | ND | 5.2 | 5.8 | ND |
| 16:1n7 | 8.2 | 6.5 | ND | 8.2 | 5.8 | ND |
| 18:1n9 | 17.0 | 13.2 | ND | 17.2 | 12.7 | ND |
| 18:1n7 | 2.6 | 2.0 | ND | 2.6 | 2.0 | ND |
| 20:1n9 | 3.5 | 6.2 | ND | 3.9 | 5.9 | ND |
| 22:1n11+13 | 3.4 | 8.9 | ND | 4.0 | 8.6 | ND |
| 22:1n9 | 0.7 | TR | ND | 0.8 | TR | ND |
| 18:2n6 | 1.1 | 1.4 | ND | 1.1 | 1.4 | ND |
| 20:4n6 | 1.1 | 1.2 | ND | 1.0 | 1.3 | ND |
| 22:4n6 | 0.2 | 0.2 | ND | 0.1 | 0.2 | ND |
| 20:5n3 | 3.7 | 3.8 | ND | 3.5 | 3.7 | ND |
| 22:5n6 | 0.5 | 0.6 | ND | 0.4 | 0.7 | ND |
| 22:5n3 | 1.4 | 1.4 | ND | 1.3 | 1.5 | ND |
| 22:6n3 | 13.0 | 13.5 | ND | 11.0 | 14.5 | ND |

# NOAA TECHNICAL REPORT NMFS

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